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MELANOSIS PRODUCING PARALYSIS.

BY A. SPRUELL, F.R.C.V.S., DUNDEE.

THE perusal of Mr. Ross's paper on Melanosis, read before the last meeting of the Irish Central Veterinary Medical Society, reminds me of a very remarkable case of that disease which occurred in this neighbourhood about two years ago. The history of the case, so far as known to me, is very brief, but from the excessive amount of melanotic deposit displayed, it may be of some interest to the members of the profession, and as I have never seen or heard of any other similar case, it may possibly also be regarded as worthy of record in the pages of the Journal.

About two years ago, I was called upon by the agent of one of our large railway contractors to go to a neighbouring town to see an aged white cart mare which had lost the power of her hind-quarters, and which had been under treatment by the local veterinary surgeon for some time without any apparent signs of success. I duly arrived at my destination, and on consultation with my friend, the veterinary surgeon in charge of the case, I found that she had been treated in the usual way for cases of paralysis—that is, by physic, followed up with nervine tonics, and accompanied by the application of mustard to the spine, from the withers backwards; she was also put into slings, and was in them when I saw her. I had her taken out of the slings, to see to what extent her powers of locomotion were affected, and was surprised to see that she was very far gone indeed, the utmost

care being necessary to prevent her from falling during the act of taking her as far as the stable-door and back again. This being, however, successfully accomplished, I made a careful examination of the spine from without, and also from within *per rectum;* and having made inquiry as to the time that she had suffered from weakness of her hind limbs, and finding that no one could attribute the ailment to any severe exertion or ill-usuage she had undergone, I arrived at the conclusion that melanosis was the sole cause of all her trouble. My brother practitioner could not quite agree with me on this point, as he had never heard of such a thing before; no more had I, but such was the state of matters in the case before us that I, for my own part, felt no doubt on the subject.

Externally, the root of the tail, the perineum, vulva, and all the adjacent regions extending downwards between the legs as far as the groin, was one complete mass of melanotic tumours, varying in size from that of a pea, or even smaller, to huge masses of about five to six inches in diameter. The attempt to make an examination *per rectum* was with difficulty carried out, owing to the roof, floor, and sides of the pelvic cavity being so closely studded with tumours of a similar nature to those situated externally, as to almost prevent the passage of the hand. By dint of a little care and perseverance, however, I at last managed to get as far forward as the length of my arm could reach, and as far as I could feel on both sides of the posterior aorta, and indeed apparently also within or around it, the masses of melanosis, from three to four inches in diameter, were so closely packed that I felt convinced that we had to do with a case of occlusion of the aorta, either from deposit within the coats of the aorta itself, or from pressure upon them from without. Along the course of the aorta, and possibly deposited within the lymphatic glands of this region, the tumours had just sufficient clear space left between them to mark out their margins; in several parts, however, where they were largest they had the feel of being piled up one on top of the other, till the effect produced became such as I have endeavoured to describe. I felt all the more convinced of the correctness of my diagnosis by the fact that the hind legs were much swollen, and the circulation,

both arterial and venous, was evidently of a very sluggish character. Although we could not quite agree as to the cause of the paralysis, we were equally convinced of the hopelessness of the case, and being at one on this point, we forthwith recommended the destruction of the animal.

This was, I understand, duly carried out a day or two after, but as the order had to come from the head office, and a report had first of all to be sent there, and as the case was about twenty miles from home, I am sorry to say that I did not personally have an opportunity to make a *post-mortem* examination, and I understand that my confrere did not consider it worth his while to do so.

STOMATITIS PUSTULOSA ACAROSA OF THE HORSE.

BY RICHARD W. BURKE, M.R.C.V.S., A.V.D., WOOLWICH.

THIS disease is unknown in veterinary literature. Professors Eggeling and Ellenberger* have certainly described a disease which they were pleased to designate "Stomatitis Pustulosa Contagiosa" of the horse, and in which they noticed the presence of particular *fungi*, but, unfortunately, they were "undecided whether they had a high or a low form of fungus to deal with." The affection with which I am now concerned, notwithstanding that there is no very clearly defined line of demarcation, otherwise, between it and that of the authorities I have just mentioned, is thoroughly unique of its kind, in that its development is due to the presence of an indubitable *Acarus* (*vide* fig. 1).

Although the last named authorities have distinctly sketched the clinical history and experimental results of the disease they interpreted, a mere cursory notice has been bestowed on the microscopic feature of the fungi described by them. And this last I consider of the very first importance in the matter of its diagnosis, as a faithful record of the morphological characteristics of the fungi, etc., becomes indispensable in the aiding of future investigation. We have observed how the onward march of

* VETERINARY JOURNAL, 1878, p. 293. Translated from Archiv für Wissenschaftliche und Practische Thierheilkunde.

science has necessitated a combination of the study of pathological anatomy with that of clinical medicine, and the day has now certainly arrived when to the study of pathology we must assuredly add that of the use of the microscope in all future diagnoses of disease.

Although the salient characteristics of the disease which Eggeling and Ellenberger considered from a clinical point of view, seem to me to indubitably correspond with those of the case I had under my notice, yet, etiologically, I feel compelled to draw a robust difference between the subjects of our respective observations, as mine is a solitary instance of the disease due to

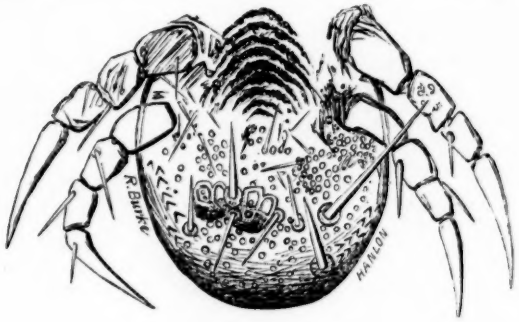

FIG. 1.

Posterior portion of an acarus, as seen in a tumour removed from buccal epithelium of a horse. ×700 (magnified $1\frac{1}{12}$.)

an *Acarus* hitherto recorded. These Acari I have shown to the other veterinary surgeons in this garrison, having demonstrated them under the microscope; and we are none of us disposed to doubt the identity of these creatures, as being genuine specimens of either the one or the other of the varieties of the equine Acarus. The reader, however, may satisfy himself of the truth of this by study of the sketches appended.

The subject of the disease was a mare attached to the Riding Establishment at Woolwich, and under treatment of veterinary surgeon, R. S. Sartin, A.V.D., by whose kind permission she was, at my request, placed at my disposal, in order that I might study the nature of the symptoms she manifested. And I must

here accord to veterinary surgeon Sartin, the exclusive merit of having disclosed the clinical diagnosis of the case, inasmuch as he compared it to that described by Eggeling and Ellenberger; for myself, I but accomplished an analysis of the case microscopically, wherein, however, I have noticed one fundamental difference between it and that form of disease Eggeling and Ellenberger especially studied. A slight description of the case under consideration might therefore prove to be not without interest. The labial and maxillary buccal mucous membranes, the dorsum and under surface of the tongue, and the skin of the corona labialis of our patient were occupied by numerous small multiple epithelial tumours which, as they softened, soon gave place to so many little ulcers, possessing a highly injected appearance at their floor, their margins in places being coated over with a yellowish-looking exudate; but the ulcers themselves were disposed to heal up readily, and to be followed by a fresh crop of tumours identical with that preceding, which in like manner occasioned in its turn ulcers identical with those preceding. One of the most common characteristics of these tumours was their brief duration, and the tendency they exhibited of undergoing rapid degeneration—indeed, they were doomed to almost immediate destruction; for no sooner did they form than they were replaced by ulcers. These latter seldom exceeded in size a large pea or bean; while where they had become confluent, ulcers of the size of a four-penny piece and larger were ultimately visible.

The tumours may be described as little cell-conglomerations, due to some abnormal stimulus, the result of animal parasitic action located in certain parts of the buccal epithelium of the horse, interfering with the regularity in the occurrence of ordinary phenomena, leading to an upheaval of the cells in a disorderly confused fashion, and constituting what is pathologically known under the generic term of *Tumour*. Again, they may be described as abnormal epithelial excrescences fortuitously developed upon the surface of pre-existing normal epithelium; but if we examine the same microscopically, that seemingly unknown cause of their development becomes a known one in the presence of unequivocally well formed *Acari*. The difficulty experienced by Eggeling and Ellenberger in accounting for the contagiousness

of the disease they described is, in this instance, surmounted. Acari and tumours stand as cause and effect. The proneness of the tumours to early destruction is due, first, to the fact that they are made up for the most part of cell elements, *i.e.*, they are almost exclusively cellular in their constitution; second, to their speedy development; thirdly, to a want of adequate nutrition in them. Fatty, and even purulent degeneration, replace what was once an absolute tumour, however insignificant in size, by an inevitable ulcer, the principal characteristics of which are a hyperæmic base, smooth edge, and a proneness to early repair.

There can be no two opinions as regards the manner of inception of the tumours in the mouth of the horse, having in view the part played by these same *Acari* in the disorder well-known as "Mange," and occurring on the dermic surface. We are, moreover, acquainted with the action of the *Sarcoptes cati* in producing inflammation and ulceration of the *cornea* in the cat. Indeed the tumours and Acari found to be associated with them, may verily be said to stand in the relation of cause and effect, the one to the other. Bearing in mind the destructive action of Acari on the skin-surface, I have, and I think not erroneously, ascribed the production of the tumours on the buccal mucous membrane of the horse in this disease to their agency. These Acari, therefore, show to actual demonstration the apparently occult cause of the tumour development I have striven to describe.

There were no appreciable constitutional symptoms, so far as I could ascertain, associated with the inception and development of the consecutive series of tumours and ulcers that I have above attempted to delineate. Further, there was no implication of lymphatic glands; but a certain amount of œdema of the lips, in conjunction with considerably increased salivation, decidedly existed, and actively manifested its presence.

Dr. Beale has observed:—"It is beyond the power of language to describe the characters of many structures in such a way that their appearance could be reproduced in the mind of another; and even if this could be done, so wonderfully delicate and minute are the observed differences in many cases, that an attempt to classify and arrange our observations would seem to

be at present hopeless, and must become more hopeless in proportion as observations multiply. The different meanings, which different persons attach to words and phrases, give rise to another difficulty in an attempt to collate and deduce inferences from the observations which have been made. It, therefore, seems to me that all advance in our knowledge of structure really depends upon accurate copies of the objects being made.

FIG. 2.

Showing legs of an acarus, with fungi, epithelial cells, oil globules, and pus corpuscles, the contents of a tumour removed from the buccal epithelium of a horse.

In this way alone can the work of the present generation be useful to that which succeeds it."* It is clearly unnecessary, then, for me to do more than to simply submit my sketches from the original objects to the notice of future observers, leaving it for them to contrast or assimilate the structural similitudes of the little tumours peculiar to the disease described, and at the same time the morphological characteristics of the Acarus concerned in their production. My sketches, therefore, are herewith

* "Microscope in Medicine," by Lionel S. Beale, pp. 33, 34.

appended, to which I will add but a few short explanations, so as to more thoroughly ensure a just conception of them.

The fully formed Acarus, of which fig. 1 is the best illustration, was oval shaped, being considerably wider posteriorly than anteriorly, and having a triangular head, and four legs on each side, or eight in all. Each leg presented four articulations. Other minor peculiarities of conformation will be better studied in the sketch itself than through the means of any verbal description.

Fig. 2 represents a multum in parvo representation of the structure of any one tumour taken as a whole. It shows the legs of an Acarus (body of which has been destroyed, doubtless, by the pressure of the cover-glass); some form of fungus; numerous epithelial cells; and oil of globules and pus corpuscles resulting from the disintegration of the latter.

Fig. 3 represents a young Acarus as found in a similar tumour removed from the buccal mucous membrane of our patient; *a* and *b* doubtless indicate the future legs, now *une anomalie* in its structure.

FIG. 3.

A young acarus, found in a similar tumour removed from the buccal epithelium of the horse. *a* and *b* represent the future legs of the full-grown acarus. × 200.

FIG. 4.

Probably the embryo stage of the acarus. Found in the same tumour as Fig. 3. × 700 (magnified $1\frac{1}{2}$.)

FIG. 5.

Probably the embryo stage of the acarus. Found in the same tumour as Fig. 3. × 700.

Figs. 4 and 5, highly magnified, seemed to me to be probably the embryo state of the Acarus above described.

I would here note the great liability to disappointment that is incurred in the search for Acari in the tumours we have just considered. In illustration of this, I may remark that in many fresh slides I have altogether given up as hopeless the idea of discovering them, but that, on a subsequent occasion, I have on examination found them to possess some one, others two, and others again three of these creatures, with perhaps some oval bodies resembling the embryo stage of the same. Again, some few refused to discover any to the most careful scrutiny, though continued for many consecutive minutes of each sitting at the microscope. This, however, must prove no discouragement, and should not damp the ardour of succeeding observers, as in every branch or department of the science of the microscope, the most earnest, indefatigable, and tedious labours will often lead to disappointment and be unfruitful of results. It is only to those who hope against hope, who persevere in the teeth of seemingly insuperable obstacles; in short, it is only to those who *wait* that success will eventually come, fully compensating for the labour spent, and replete with results of value and interest.

I have treated this subject, with the substantial whole before me, from the point of view of a micro-pathologist, although certain clinical facts, being inseparably connected with a thorough consideration of the disease, could not with propriety have been passed over, and this is the only apology I offer for their being joined in this place.

I have refrained as far as possible from leading my readers into any unnecessary details of the case, and I trust also that there will be no more technicalities found here than the merest tyro in general pathology may understand.

POISONING BY ACONITUM NAPELLUS.

BY CHARLES MORGAN, M.R.C.V.S., NONINGTON, KENT.

ACONITUM NAPELLUS is cultivated in many gardens in this locality, being hardy and a handsome, free-growing flower.

The following case, which came under my immediate notice, I think worthy of note.

Subject: a bay cob; had been out several hours in perfect health, and was seen, while standing beside a fence, to bite off four pieces of the flower, which had just commenced blooming.

The owner witnessed the occurrence, and could have taken the pieces out of the animal's mouth; but thinking there was no danger, allowed them to be masticated. He noticed, almost immediately, an increased flow of saliva.

The horse went about a mile, and was then brought to my house and taken out of harness.

I saw him in about two hours. The symptoms were frequent violent attempts at vomition, almost complete loss of power, reeling about and falling, pulse imperceptible, and purging commencing.

Repeated doses of Ol. Lini. were administered, with stimulants. The first dose stopped the efforts to vomit. Purging was very free for about twelve hours, when the patient gradually recovered, and in two days was well enough to walk home, a distance of four miles.

FERRUM DIALYSATUM.

BY J. DOWLING ALLMAN, PHARMACIST.

SINCE I introduced dialysed iron in combination with quinine, it has formed an important therapeutic agent in veterinary practice. Not being thoroughly understood what the chemical properties of dialysed iron is, this article is written as a supplement to my previous one, which has already appeared in the columns of this Journal. The substance, dialysed iron, or peroxy-chloride of iron, is prepared in the following manner:—Dilute 10 parts of solution of ferric chloride with cold distilled water, precipitate, it will dilute (1·10) water of ammonia; wash the precipitate with cold water, and add it, while still moist, to 11 parts of solution of ferric chloride contained in a sufficiently capacious flask. Put it aside one day, frequently agitating,

until the ferric oxide is dissolved. Filter if necessary; transfer the solution to a parchment dialyser, which must be filled so that the surrounding water reaches to one-third of the height of the within-contained solution. Set the apparatus aside in a cold place for about ten days, and remove the outer liquid occasionally, replacing it by distilled water. As soon as a small sample of the solution removed from the dialyser ceases to produce cloudiness with silver nitrate, the solution is poured out into a beaker and its specific gravity taken, which should be 1045 to 1046; if found to be too dilute, it must be concentrated by evaporation; otherwise it must be diluted. One hundred parts of this solution contain five parts of anhydrous ferric oxide. Supposing the specific gravity of 240 parts of the solution had been found to be 1018, this would correspond to a percentage of two parts of anhydrous ferric oxide. Then by saying, $5 : 2 :: 240 : x$, we find x to be 96; that is, the 240 parts of specific gravity 1018 must be evaporated to 96 to contain 5 per cent. of ferric oxide; or, which is the same thing, to have the specific gravity 1045. This evaporation must be conducted very carefully, by heating a portion of the solution (about 90 parts) in a shallow capsule on the water bath, at a temperature not exceeding 60° or 70° C., stirring constantly with a glass rod, and preserving the original height of the liquid by the gradual addition of more of the solution. Another process, which, however, yields a less pure product, is the following:— Dilute 86 parts of ferric chloride solution with 800 parts of cold distilled water, precipitate it with dilute (1·10) water ammonia, collect the precipitate on a strainer, squeeze it, wash it as quickly as possible with cold distilled water, and transfer it into a large flask containing 10 parts of solution of ferric chloride, diluted with 40 parts of distilled water. Set aside for four days in a cold place, and shake frequently; then add to it moist hydrated ferric oxide prepared as before stated from 25 parts of solution of ferric chloride, set again aside for three or four days, occasionally agitating; dilute the solution with water, so that after filtration it amounts to 520 to 525 parts; if too dilute, it must be carefully evaporated to that weight. This solution has the same specific gravity and percentage as the first-mentioned one.

Iron prepared in this manner has decided therapeutic value over any of the other ferruginous preparations. It does not cause constipation of the bowels, or disturbance of the digestive or nervous system—an important matter to bear in mind where iron is indicated. It is said that dialysed iron is an antidote for arsenical poisoning, for which purpose it is recommended to replace the hydrated sesquioxide on account of its convenience of administration, and the fact that it requires no previous preparation.

FRACTURE OF THE NAVICULAR BONE.

BY S. W. WILSON, M.R.C.V.S., A.V.D., 3RD HUSSARS, ALDERSHOT.

I HOPE the accompanying history of a case of fracture of the navicular bone may be considered worthy of insertion in the VETERINARY JOURNAL. It was the first case of the kind I have actually had under my own treatment, and it was very interesting to me.

The animal was a Hungarian—a troop-horse in the 3rd Hussars (G. 15). On November 22nd, 1881, on the march from Norwich to Aldershot, the horse suddenly made a violent stumble, very nearly coming on to his knees. The rider declared that he put his foot on a stone. The accident caused great lameness in the near fore-leg, and the horse had to be led the remainder of that day's march. On the following day he was also led; but, after going some sixteen or eighteen miles, he was so lame that he was left at the nearest billet (in Edmonton). He was here attended by Mr. Stanley, M.R.C.V.S., of Edmonton, who pronounced it a case of navicular disease. I first saw the animal on December 1st, 1881, and quite agreed with Mr. Stanley that it was a case of foot lameness, though, from the horse's former history, I could not think it a case of ordinary navicular disease. I diagnosed it a case of fracture, without displacement, either of the os corona or the navicular bone, but was more inclined to the former than the latter. This was after a full hour's examination. I failed to find any heat in, or any flinching by manipulation of, any part of the limb; but in walking the

horse was excessively lame, going on the toe, and, indeed, trying, if possible, to keep the foot entirely off the ground.

On December 6th the horse was sent on to Aldershot by rail. He was then walking better, though still very lame. My only treatment for a short time was to apply cold water constantly to the coronet and foot. For two hours daily this was done by a hose, the remainder of the time by a cold swab. On December 14th I applied a strong blister over the coronet, reaching up to the fetlock. This was washed off about the end of December. The horse was then not nearly so lame. I then resumed the cold water treatment, and he got gradually better, and was sent to light duty on February 18th, 1882. He, however, only attended one field-day, and was taken into the Horse Infirmary again on March 8th very lame. Again there was an entire absence of heat or pain on pressure, but the same action, viz., going on the toe. I forgot to remark that he always pointed the toe of the affected leg when standing in the stable, and this symptom continued. I put him under the cold water treatment for a short time, and about the middle of March again applied a strong blister over the coronet up to the fetlock. This was washed off about the end of the month, and was succeeded by the cold water again. Towards the end of April there was no improvement at all, and I applied for permission to destroy the horse. This was carried out on the 27th April, at the recommendation of Mr. Gudgin, I.V.S., Aldershot, and a Board of veterinary surgeons.

On making the *post-mortem* examination, I first thought the bone was only partly fractured or cracked, but on manipulating it, after its being in hot water a short time, I saw the fracture was complete.

I herewith send the fractured bone.

[The bone is fractured completely through, near the middle ridge, and there does not appear to have been any attempt at repair.]

ON THE LITERATURE OF "DISEASES OF THE ELEPHANT."

BY J. H. STEEL, M.R.C.V.S., ARMY VETERINARY DEPARTMENT.

(*Continued from p.* 403, *vol.* xiv.)

With regard to feeding, we are given the following information, which we have arranged in a tabular form :—

FOOD OF ELEPHANT.	*Ratib*, or rice, allowance of 32 lbs. *per diem*, for which may be substituted—1. Wheat-flour, 24 lbs. *per diem* ; 2. Clarified butter (ghee) ½ lb. *per diem*, or coarse sugar, 1 lb. ; 3. Common salt, ¼ lb. *per diem*, made up into unleavened cakes (chuppatties) of about 2 lbs. each.
	Spice Balls.—One given per week.
	Water.—Six to eight gallons (Parkes); twice daily, 24 galls. at a time (Gilchrist) ; allow to drink as much water as they will (Forsyth). They will reject muddy, stagnant, or briny water, and "object to that procured in the sandy beds of rivers." An elephant cannot support a deprivation of water much beyond twenty-four hours. (Gilchrist).
Total amount of daily food estimated at 200 lbs.	*Cherraie or Fodder.*—Bamboo will not be accepted for long (Forsyth). Millet stalks (kurbee), dry grass, useful for a short time, but soon green grass required (Forsyth). Sugar-cane, good, in small quantities, and is a great treat (Forsyth). Fresh grass of several different kinds: 1. Kusselah (Gilchrist) ; 2. Kala (Gilchrist) ; 3. Puttairah, guttaoloo (Gilchrist) ; 4. Panee-ka-arecalee (Gilchrist), mixed with a weed liable to purge ; 5. Typha elephantina (Forsyth)—perhaps same as 4, for both found in tanks during the rains. Branches of trees, inner bark of layer, and whole of smaller with the leaves : 1. Raambahd (babool) ka-jahr, least used ; 2. Mandaroo ka-jahr, more used ; 3. Piplee ka-jahr, more used ; 4. Bhur ka-jahr, more used ; 5. Peepul ka-jahr, best. The leaves of the peepul not given during the hot season, as they cause Enteritis and opacity of the cornea. Names given by Gilchrist. "The various kinds of fig-tree, bántján, peepul, and goolar" (Forsyth). When a change is made from wheat to rice, boil part of this for some time, at first ; carefully see that the elephant gets his full allowance, for the mahout reckons on being able to keep his whole family out of the sahib's elephant.

Pringle states that the wild elephant uses his tusks as crowbars for uprooting trees with succulent roots, and upon which he feeds with avidity. The trunk is used as an organ of prehension for liquids as well as solids. The passages through this organ are

something superadded to the ordinary nasal passages, and water can be drawn in probably to as far as the nasal cartilages, and retained for some time. The end of the trunk being passed into the mouth, the water is then expelled into that cavity, and swallowed. This action is accompanied by a peculiar gurgling sound. It was at one time thought that the young elephant sucks with his trunk, but it is now definitely ascertained that this idea is an error based on the fact that, while sucking, the calf caresses the mamma with the trunk, and probably thereby assists in the flow of milk. The nipple is grasped by the side of the mouth, and the dam bends the chest downwards that the little one may reach with ease, or is spared this labour by the care of the attendants in raising a small mound for the calf to rest on (Corse. "Philosophical Transactions," 1799). It is said "that the position of the two breasts in the female enables the young one to suck as it runs along beside the mother, or even under her belly" (Williamson). An elephant in feeding makes use of the tusks, and even the fore limbs occasionally in the emergencies of wild life, but usually he simply requires the trunk as an organ of prehension. With this "lithe proboscis" he is enabled to grasp either great things or small. The former he seizes by twisting the trunk more or less round them, and the skin of the posterior surface of the organ is ordinarily transversely corrugated to make the grip firm. With smaller objects he simply closes the hand-like extremity of the organ, and while seeking a fair trunkful, he will retain small particles in the end of the organ by slight short sniffings. Thus by a judicious exercise of patience the trunk may be able to collect sufficient material to make it worth while for the huge jaws to come into motion, and the immense millstone-like teeth to crush the materials placed between them by the backward flexure of the proboscis. It is no wonder that instinct teaches the animal to keep the trunk out of harm's way with the greatest assiduity. The elephant when attacked by a tiger elevates the trunk to the utmost. In days of old, when horsemen charged elephants, they were instructed to endeavour to injure the trunk; and when an elephant was burnt to death in Dublin the trunk was found "thrust near two feet into a very hard ground." In treatment of wounds of

the trunk the principles of conservative surgery must be attended to, for after an animal has lost a part of this most important organ a large amount of extra care will be required to keep him fit for work.

We need not here enter at length into the moral features of the elephant; its docility and obedience to, and affection for, its keeper are well known.* Instances of remarkable memory and of evident reasoning are given in all books on natural history, and strange as some of them seem, they are not as a rule exaggerated. The immense power of the animal renders it a fortunate thing that the best training can be carried out by the judicious giving of rewards, such as spice-balls and other tit-bits. An elephant enraged is a fearful object; his bellowings are terrific. He charges his enemy with resistless force, seizes him with his trunk, and dashes him against the ground, tramples him under foot, or crushes him beneath the knees, sometimes endeavouring to transfix him with the strong and pointed tusks. When less excited, he has been known to hurl stones and other such missiles at the object of his dislike, and in opposing one another, elephants, watching their opportunity, charge and upset the enemy on his side. They have a curious dislike for small animals, such as dogs, and in an encampment this dislike ought to be respected. It is well known to be dangerous to encounter elephants by night, for they have a most acute power of smell, and hear with facility. They make sounds differing under different circumstances, indicative of rage, apprehension, satisfaction, and other feelings, and the mahouts learn to discriminate between these. The eye, though small, is constantly in movement, and it presents some very remarkable anatomical characters.

There has been a great deal of discussion concerning several points in the physiology of generation of these enormous animals. The main supplies result from the capture of wild ones, and subsequent training. Sometimes pregnant females thus taken calve, and the young ones are trained from birth; but it has been said that the elephant is too proud an animal to

* As instances of extreme docility, many elephants will fasten the picketing chain around their own foot; and the female decoys are said to enter with keen relish into the sport of capturing their fellows, which reminds us strongly of British pressgang-men.

breed in captivity, and thus raise slaves for man, his hereditary foe. This poetic idea, however, is badly based, for elephants can be and have been bred in captivity. With the peculiar position of the external generative opening in the female, it would at first sight seem that the copulatory process would necessitate a special and peculiar posture; but the long clitoris during erection carries the opening backwards, and the position of the male is that of ordinary quadrupeds, while the female goes down on her knees, and rests the forehead on the ground, as is represented on medals and native sculptures. There are several other ideas in reference to this subject, which seem to have resulted from the rarity of elephants breeding in captivity in the present day. The females, under the present system of management, certainly seem to have the sexual instinct moderated in intensity. They are said to carry the young for twenty months and eighteen days. It is interesting to note that the trunk exhibits sexual differences, its extremity being stouter and more square in the male than the female. The young may be fed by means of this important organ (Ouchterlony).

Diagnosis of elephant diseases seems to be in its infancy. Any of the natural functions of the body may be impeded, or the habits of the animal irregular. Thus, there is in Encephalitis a stage of delirium in which the animal endeavours to escape, and may even attack the mahout, and "the trunk decreases in length, becoming sometimes only half its original length." Subsequently paralysis sets in. Apoplexy comes on suddenly; "it does not attack the animal while at active work, and may cause death in an hour after the animal has appeared in perfect health. The animal becomes stupid, and then comatose, and enormous quantities of urine are frequently passed" (Nunn). "It may result from the continued exhibition of stimulating mussalaus, given with the view to support the strength of the animal during arduous labour" (Gilchrist). In inflammation of the lungs the animal is very restless, but does not lie down, opens the mouth very wide frequently, and coughs several times in an hour. Later he endeavours to escape, but is not furiously delirious, says Gilchrist; but he adds, "the disease is obscure." Altogether it is very evident that the symptomatology of this

important animal requires to be worked up with care. There can be no doubt now that the diseases of elephants are as numerous, complex, and amenable to treatment as those of other animals; but until their study is made on a scientific basis, their management must remain empirical, and the man best acquainted with the manners and habits of the animal will have the advantage. The little that has been done in this direction is eclipsed by the large amount of work that remains to be done. The patients are very valuable, and mostly belong to the Government; it therefore is incumbent upon the authorities to do their duty, and make arrangements for the scientific and systematic study of the diseases of the elephant. The infrequency of remains of dead elephants in the native wilds has been commented upon, and therefore it has been urged there should be no necessity for a separate study of elephant pathology. It is probable that internal parasites prove troublesome to the wild elephant, and that insects and other partial ectozoa torment them; nevertheless, the absence of disease in them is attributable to the simplicity of their life-conditions. But we take elephants from their native wilds, and submit them to conditions of domestication without those hereditary adaptations to the domesticated state which we find in most of our other beasts of burden; that the effect of this is not a fearful mortality is due to their large size, which to an extent protects them from cruelty, and from being housed in ill-ventilated stables. It also ensures a reasonable amount of attention being paid to them.

With regard to operative surgery, it is a significant fact that Messrs. Arnold's catalogue of veterinary instruments contains one notice of the elephant, of an enema apparatus which may be obtained at the formidable rate of three guineas per apparatus! We read only of opening abscesses, bleeding and removal of a crustapetrosa tumour. The method of restraint for the latter operation is described by Forsyth: twenty or thirty people sat on the head and body, and so kept the elephant down; he was tied with hobbles, and the mouth kept open by a log with spikes in it, placed like a bit. Ouchterlony says that occasionally in giving draughts it is found necessary to make the animal kneel down, secure him by fastening a chain under the fore-arms and

over the neck, hobbling the fore and hind legs, inserting an iron crowbar between the grinders, and injecting the draught; which certainly seems a formidable process, and not likely to do a sick animal good; but *experientia docet!* Generally remedial agents are incorporated with the chupatties, or cakes, with which the animal is fed, and are taken with pleasure by the animal; the best means of administration of liquid agents seems to be by using the Reed's patent enema apparatus as an artificial trunk. We are told to bleed "on the forehead or behind the ear," which is somewhat indefinite, and to remove one to one-and-a-half gallons at a time. Gilchrist has great faith in the efficacy of this operation, even suggesting it in Zérbád, while Forsyth also recommends depletion by extremely scanty diet and active purgation. The elephant is said to stand operations well, and, like many other of our patients, to exhibit a liking for the surgeon who has afforded him relief. Those who have seen how bravely dogs will stand painful operations and careful manipulation, will not be surprised at this instance of the elephant's sagacity. Both Ouchterlony and Forsyth touch on the question of examination as to soundness. The hints they give are good, and are summarised in our notes as follows: Examine eyes, then trunk for age and general state of health; ears for scabs and ulcers at their supero-external parts and junction with head, also their free margins and the ear-holes; the spine for saddle-galls, warts, and so on; select a flat back, which is generally sound and free from galls, it also carries a howdah better than a highly-arched one. Look for galls on belly, withers, loins and shoulder; feet for wear and absence of disease, tap all over sole with a hammer; try the paces, and examine as to age and docility, and degree of training. It seems that elephant dealers are not above suspicion, for Forsyth tells us though Bengal landowners sell young useful animals at Sóupúr fair, Mahommedan dealers bring the halt and the blind; a dangerous man-killer, reduced to temporary harmlessness by a daily pill of opium and hemp; káudi sores plugged; sáphán-cracks paid with tow; sore backs surface-healed; animals so bedizened with paint, and so fattened with artificial feeding, that it is hard to tell what any one of them would look like if "stripped to the bones;" space so confined and crowd so great

that you can't get a fair trot. Such are a few traps for the unwary elephant-buyer.

It only remains to summarise our information as to medicinal agents, their actions, uses, and doses, and in doing this our difficulty lies rather in the paucity of material to work with than the reverse. In reading Gilchrist's accounts of mussalaus, recommended by the mahouts, we are reminded of the treatment of the time of Gervaise Markham, as given in his "Way to get Wealth," and of the barber-surgeons of the Middle Ages. The processes of preparation are most elaborate. Thus, ingredients of the most diverse actions, sometimes numbering eighteen to twenty, are taken, prepared, and compounded with the utmost exactness. Sometimes this can be thoroughly done only on a holy day. They are buried near an elephant, and left there for a certain time. The receipts can be ascertained only by the greatest pertinacity. One of the first things we find mentioned is disemboweled frogs, with their legs cut off! We are told that the use of cathartics in the treatment of diseases of elephants is unknown to the natives, and that their medical theory is, "Treatment must be directed either to increase or decrease the body heat." Gilchrist, in 1841, at once introduced free bleeding and the use of cathartics, no matter whether for Zérbád or for Inflammation of the Lungs. He suggests removal of blood to the extent of one to one-and-a-half or two gallons, to be repeated if necessary. His physic dose in Zérbád is, Aloes Barb. ʒiv. to ʒvj., Croton. Sem. ʒij. to ʒiv. With this we are to stop the ratib, and also give three times daily calomel ʒss. to ʒj., and we are told the disease is *very* fatal—a statement which certainly seems likely to be correct as applied to the disease treated on the principles indicated. The natives prefer such agents as sulphuret of arsenic and stramonium. Forsyth gives the following as a convenient cathartic dose: Take, Croton-seeds, one ounce; calomel, one and a-half drachms; aloes, six drachms; rice-flour or goor (crude sugar), 9 s; M. ft. bolus.

The following is given as an ordinary Colic dose (Gilchrist):—Opium, 1-3 tolahs; assafœtida, 3 tolahs; ginger, 2 tolahs, mixed with jagghery, 9 ʒ. This may be repeated in an hour, if required. In cases of Flatulency, the following is recommended: Ginger,

℥jv.; assafœtida, ℥j.; sweet flag, ℥ij; marjosa bark, ℥viij; antimony sulphuret, ℥ij, with jagghery, 9 s.

These formulæ read reasonably enough, but when we come to examine the list of medicines, as given by Gilchrist (with their Hindûstani and Tamul synonyms), we find this otherwise most valuable part of the work has some information which, to those of us accustomed to use medicines at home, seems strange, to say the least of it. Thus sulphur is considered "stimulant" in its action; cloves are "cooling;" black henbane is "cooling and carminative;" stramonium is "stimulant," and coriander seeds "cooling," and so on. What we have written above is not in a spirit of hostile criticism, but rather to indicate the very elementary knowledge possessed by Gilchrist and his informants of the nature and action of medicines on the system of the elephant, and the way in which they may be utilized in the treatment of disease. The ground was practically unbroken then; as far as we can determine from literature, it remains in the same state now, forty years since Gilchrist turned the first sod!

The following imperfect list of agents mentioned by Gilchrist, but not given in our ordinary veterinary pharmacopœias, will prove interesting. It will be observed that almost without exception they are substances which may be obtained in a usable state, and for a small sum in the bazaar:—Dried gooseberries, oleander flowers and bark, cassia, marking nut, small inknut and inknut flowers, sweet flag, cowries, nuts (used in betel), butter milk, orange fruit, grey bondue fruit and seed, jagghery (crude sugar), dammer, bitter cucumber, Indian hemp, Arabian castus, poison nuts, bdellium, carrot root, garlick, liquorice, marjosa bark, chunam, pellitory root, juice of mahaar.

One very interesting and useful feature of native dispensing seems to be the use of ordinary coins as weights. Thus we find the dose very frequently the "weight of one Mysore pice," which certainly is more definite than "pills the size of a pea,"—which latter, by the way, are to be administered hourly. Some medicines are given in the form of electuary.

With regard to agents applied externally:—Blistering ointment is made up of the ordinary Ung. vesic., together with twice its bulk of turpentine; "apply over a couple of square feet." As

wound dressings, we are requested to try the juice of the banyan, or the ripe or yellow branches of the common milk-hedge (?) burnt to ashes, but especially camphorated oil is recommended to keep away the flies.

A special form of bamboo tube is suggested for the purpose of blowing powdered nitrate of silver into the eye. In congestion of the conjunctiva, one prescription from native sources requires a desert-spoonful to be inserted in the eyes morning and evening on alternate days, and goats' or cows' milk in the intervals.

The method of application of fomentation is given with useful minuteness by Gilchrist :—"Cow-dung is mixed with water in This being heated in a large chatty, is applied to the body over as much of the surface as is deemed necessary for the particular malady under treatment. The application is continued uninterruptedly until a coating of it has accumulated, the thickness of which prevents the rapid dissipation of heat. When it is wished to foment the back and sides of an elephant a flannel cloth (phool) ought to be first thrown over the back, and the ends tied together beneath the abdomen. The hot water (without cow-dung) may be applied to the cumblie by means of a brush, as above alluded to. This will soon become saturated with hot water, and the continued application of this will keep up its temperature, which the thickness of the cloth will prevent immediately becoming reduced."

The surgical instrument case, described by Gilchrist, contains, among other things, steel-probes (1 ft. to 1½ ft. long), ordinary human amputating knives, with their handles strengthened by a string binding (for opening abscesses), half a dozen human amputating knives of medium size, but with sharp points for *post-mortem* examinations, and thirty or forty yards of strong bandage cloth. Truly, a Titanic surgical case, proportioned to the size of the patient!

Such is our summary of the information that we, after a somewhat careful search, have been able to gain on the subject of "Diseases of the Elephant."

SUCCESSFUL TREATMENT IN CASES OF ENTERITIS AND PULMONARY HYPERŒMIA.

BY JOHN FERRIS, F.R.C.V.S., 1st CLASS V.S., A.V.D.

Case 15. *H.-2., No.* 63 *R.A., Bay Mare, aged Five.*

July 25th, 1881, 6 p.m.—Admitted after a long march. Enteritis, acute abdominal pains without intermissions. Give Opii Tinct. ʒij, Aquæ oj, *fiat haustus.* Enemata frequently, foment abdomen continually with hot flannels.

6.30 p.m.—Constitutional disturbance increased, pulse 69, respiration 19, mucous membranes highly infected, legs cold. Hand rub, and apply flannel bandages to the legs. Give Opii Pulv. ʒijs. Hyd. Chlor. 3ift. bolus.

10.30 p.m.—Pulse 63, respiration 19, pain acute, body cold, constantly looking round at her flanks, groaning, and rolling on the floor, bowels not acting. Hot flannels wrung from boiling water to be constantly applied to the abdomen, the body to be warmly clothed. Diagnosis unfavourable.

26th, 9 a.m.—Pain still acute, bowels constipated, and the fæces covered with mucus, the muscular coat is evidently the principal seat of the disease from the constant acute abdominal pain. Give Oil Lins. oj, fiat haustus ; also give Opii Pulv. ʒij, Hyd. Chlo. ʒijs, Mass q.s. ft. bolus.

12 a.m.—The horse has taken a portion of a bran mash, and she is in less pain.

6 p.m.—Frequently rolling on her back, excrement dark in colour, and covered with mucus. Give Oil Lins. oj.

27th, 10 a.m.—There has been numerous evacuations during the night, and the animal is much better, pulse only 51, respiration 14. Discontinue fomentations.

6 p.m.—Steadily improving, all the organs are acting, and it takes food readily.

28th.—Bowels acting, and the fecal matter is much healthier, and free from mucus.

29th.—Progressing favourably.

30th.—Convalescent.

31st.—Discharged cured.

Case 4. *U.*-1., *No.* 31 *R. A., Black Mare, aged Ten.*

June 1st, 1882, 11 a.m.—Hyperœmia pulmonary. Admitted immediately on its return from a boycotting expedition, having been on duty the last twenty-four hours, and travelled a distance of thirty-six miles. Symptoms: head protruding, rigors severe, respiration laborious, pulse about 95 oppressed, and barely perceptible, body, legs, and ears, very cold. Prognosis unfavourable. Remove the animal into a well-ventilated loose box, clothe the body warmly, hand rub, and bandage the legs. Give Ammo. sp. Arom. ʒiv.. Aquæ oijs. ft. haustus.

12 a.m.—Pulse about 100, and very oppressed, respiration carried on with difficulty, rigors still severe. Give Camphor Pulv. ʒjs, dissolved in Æther Sulp., add Mass q.s. ft. bolus. Refuses all food.

1 p.m.—Skin acting, pulse less oppressed, legs still cold, well hand rub them.

2.30 p.m.—Improving, pulse 85, perspiring freely, respiration less difficult, distressing cough lasting abour ten minutes evincing great irritation of the lungs. Give Pot. Nit. ʒij, in water to drink.

5.50 p.m.—Great improvement, eating green grass, pulse about 70, respiration more tranquil.

2nd, 10 a.m.—Pulse and respiration normal, and eats all her food.

5.30 p.m.—Perfectly well, give walking exercise.

5th.—Discharged cured.

Editorial.

VETERINARY INSPECTORS AND INSPECTION.

Just complaint is made by many members of the profession, that veterinary inspectorships under the Contagious Diseases (Animals) Act are only too frequently bestowed by local authorities upon unqualified and, in the majority of these instances, utterly incompetent men. The complaint is perfectly justified and well founded, not only as regards England, but still more so with respect to Ireland. In England local influence, and sometimes economical motives, conspires to induce the authorities who have the power to confer these appointments, to give the

preference to those persons who are not qualified, and who may be very unfit for the post; but in Ireland, if reports are true, such preference appears to be the rule, and the most glaring and discreditable instances of jobbery or stupidity, or both combined, are recorded. Many of the Boards of Poor Law Guardians in Ireland seem to vie with each other in appointing, as inspectors, men least fitted for the duty. In one Irish county, for instance, we are told that eight unions have appointedtwo butchers, one farmer, and five unqualified men, although there are plenty of qualified veterinary surgeons available; and not long ago it was shown in this Journal that a broken-down farmer was elected inspector by one of these boards, merely to keep him out of the workhouse, though an excellent member of the Royal College had offered himself as a candidate.

Not only is this procedure unfair and discouraging to the veterinary profession, but it is also unjust, if not dishonest, to the ratepayers. A trifling economy may perhaps be effected in the matter of salary, but in reality this is nothing in comparison to the heavy loss that must be sustained through the ignorance and inability of such individuals to perform the duties imposed upon them—duties which not unfrequently require all the skill and tact of the most highly-trained veterinarians. Such boards are no friends to the ratepayers, nor yet are they acting in a patriotic manner in making such selections. If they err through ignorance, then the taxpayers should see to it that only intelligent men represent them on such boards; and if the selection of unqualified and incompetent inspectors is made in order to favour a job, or from political or other motives of an unworthy kind, then their retirement from such boards should be rendered compulsory.

Another kind of inspection also requires looking into. We refer to the inspection of dairies. This is in nearly every instance, we believe, committed to medical men, who are, of course, but little fitted for such work. And it would appear from an answer recently given in the House of Commons by the Vice-President of the Privy Council, that the question as to the existence of Tuberculosis among dairy cattle is also likely to be left to the decision of these medical gentlemen. We earnestly hope that the profession will see its way, through the Council of the Royal College of Veterinary Surgeons, to energetically and effectively protest against their effacement in the matter of veterinary inspection. They surely have better claims to be entrusted with the sanitary management and supervision of animals in health and disease than men who have had no special training, or means of acquiring even elementary notions of what is necessary for the fulfilment of such functions. If the members of the profession will not attend to their own interests, they may rest assured they will not be protected or cared for. They need to maintain a watchful eye to detect unfairness, and a resolute will to demand and exact justice. By asking that they may have their legitimate functions allotted to them, they are not only serving themselves, but benefiting the nation and, we may add, humanity.

INOCULATION AS A PREVENTIVE OF PLEURO-PNEUMONIA.

BY R. RUTHERFORD, M.R.C.V.S., EDINBURGH.

(*Continued from p.* 424, *vol.* xiv.)

Having obtained the lymph, the operator next procures fully as many pieces of white Alloa worsted, eight inches long or so, as there are cattle to inoculate. These threads he saturates with the lymph ready for use, the threads in the meantime being the means of retaining the virus until insertion beneath the skin of the animal, after which, from their presence there, they help to localize the inoculative action.

In the actual performance of the operation various methods have been adopted. Most of them, however, are open to grave objections, not only as regards the material employed, but in the spot selected and manner of doing it. I have to condemn as dangerous the practice of making deep and cruel incisions in the head of the tail, and of inserting therein pieces of diseased lung; as also the modes recommended and carried out lately at the Brown Institution in London by Dr. Burdon Sanderson, viz., by subcutaneous and intravenous injection of the virus. Both are in their nature unreliable, and the latter is, in my opinion, not only a mode fraught with danger to the lives of the animals, but with the great bulk of them and in most hands impracticable. Others, again, in imitation of vaccination, merely scratch or scarify or incise the skin of the tail, and rub in a little virus. This mode is not attended with danger; but in my experience many of such so-called inoculations fail, from being incomplete and too mild. The mode adopted by myself—and I think my results have proved it a good plan—is the insertion at the tip of the tail of a woollen thread saturated with the virus or lymph in a manner similar to the insertion of a small seton. The advantages claimed are—

1. The minimum of danger, as a result of the inoculative action, spreading from the seat of operation.
2. In the event of the inoculation spreading, it can be arrested by amputation, which cannot be done in any other part of the body.
3. The operation is simple and easily performed.

The instruments required are a pair of strong scissors, a pair of rowelling scissors, and a needle, which latter has to be made specially for the purpose. The one I use is provided with a handle, and is four inches long, three-sixteenths of an inch broad, thin, flexible, slightly curved, and with a lancet-shaped point, furnished with a slit or eye half an inch long and about a quarter of an inch from the point. Across the eye it is slightly broader than at any other part, so as to facilitate its being easily inserted and withdrawn.

To perform the operation quickly, and with as little disturbance and pain as possible, the operator requires assistance—two men and a lad, at least, one of the former to hold the animal by the nose, the other one to directly assist the operator by holding the tail with his left hand, while with his right he steadies the haunch. The lad is required to hold in readiness the saucer or vessel containing the threads, which are now supposed all arranged ready for use, saturated with the virus and doubled into lengths of about four inches.

All being now ready, lay hold of the end of the tail, and clip the hair close off from its under surface from the tip to about four or five inches upwards; then turning the tail round, so that its under surface is lying upwards and firmly held in the palm of the hand, the first incision is made with the rowelling scissors, about an inch from the tip, then another about two inches or so higher up. The incision should be only through the skin, and there should be little or no bleeding. The needle is then inserted at the lower

incision, and passed quickly upwards and out at the upper incision, care being taken not to go too deep with it. One of the double threads is then inserted into the eye at the point of the needle, and the latter is carefully withdrawn, and in such a way as not to strip the lymph off the thread, which latter, of course, is left in. The operation requires about two minutes time only, and the first step towards inoculation is complete.

In the case of all inoculated cattle, but especially when these are milk cows, the operator must not forget that the well-being of the animal, and consequent success of the operation, irrespective of arresting the disease, is now largely dependent upon the care which he is prepared to bestow on them. He should caution the attendants and milkers to be very careful in their handling of the animals, until out of his hands; they must not be kicked or struck, especially about the rump. Without thinking anything of it, I know people are very apt to do so, if a cow is lying when they think she should be standing, or if troublesome to milk or muck out. Now is the time also to see that the precautions in respect to the comfort of the animal, which I have pointed out as necessary, are in force. The Continental inoculators give a dose of purgative medicine. I have seen no need for it; but I always recommend a little sulphur daily in the food from about the fifth or sixth day. A table-spoonful to each animal daily is enough, continued till the decline of the inoculation.

Favourable and Unfavourable Results.

After the operation the animals are generally a little restless, and to a close observer, some in a few days are evidently out of sorts. They do not, however, go off their food, not in the slightest degree, and in the case of milkers, there is no falling off in the milk given. About the third or fourth day, and from that on to the sixth or seventh day, the tail, at the seat of operation, begins to swell, the hair stumps stand straight out, it is hot, painful on pressure, and of a reddish glazed appearance. There is, however, no discharge from the incision. Following close upon the above, the skin assumes a yellowish tint, and is covered with bran-like scales of desquamating cuticle. About the ninth day, occasionally earlier, but more often later, the animal loses the power of raising the tail, and examination will show that beads of amber-coloured lymph are exuding from the skin around the seat of operation. This lymph is identical in character and properties with that obtained from the lung, good and successful inoculation being obtained from its use. The appearance of this exudate is the most satisfactory evidence we can get that inoculation has taken place, and there can be no doubt that when an animal exhibits it, such a one becomes exempt from "Pleuro." If an animal fails in exhibiting any of the foregoing signs of inoculation, it is generally owing to one of the following causes:—Having had the disease before operation; having it at the time of operation; or from non-susceptibility, instances of which I have frequently come across. Succeeding the appearance of the eruption of lymph, the most favourable course which the inoculation can now take is the occurrence of a mild degree of fever, followed by gradual diminution of the local action, drying of the eruption, and scabbing over of the incision. The animal gradually recovers the use of the tail, and the whole process is practically over in from three to four weeks. A good many cases terminate in this the very mildest way, compatible with protection, especially in the case of bullocks, young stock, and calves.

The majority, however, especially in the case of milk cows, do not end so mildly. In those, following the appearance of the eruption, we get changes of the following description:—The end of the tail swells more, it becomes quite moist from coalescence of the vesicles from which the lymph escapes. There is a tendency for it to become dark hued and low in temperature

towards the tip. Nature terminates such cases when able to do so, in one of two ways, either by the formation of an offensive sloughing sore, which after a time dries up, leaving the tip of the tail crooked and denuded of hair at this part, or death of the tip takes place and a line of demarcation being formed, between the living part above and the dead tip below, the latter is thrown off. My experience, however, is that the great majority of milk cows do not seem to have the power of carrying through this latter process favourably. Left to themselves, the line of demarcation alluded to is never perfectly formed. The death which has taken place at the tip spreads upwards, and although I have seen it finally thrown off at a point higher up, I have in view of the fact, that it may not be thrown off, but may lead to further mischief, made the following my practice :—after the appearance of the eruption I watch each case very closely, and the earlier the eruption appears the closer it must be watched. By experience I know if an inoculation is going to spread, just as one can tell if it is going to decline. The time to watch is about the ninth day, when, if the inoculative action is severe, I at once amputate the tip of the tail an inch or so above the upper incision. The stump should bleed freely, if it does not, then remove a small portion more, or until it does bleed freely. Cauterise the bleeding stump with a red-hot iron, so as to stop the bleeding and form at once a surface impervious to the air. The great majority of cases so treated require nothing more, and in process of time a really very good imitation of a tuft makes its appearance to hide any apparent disfigurement. The shortening of the tail is the only objection I have ever heard to inoculation. The objection is, however, a purely sentimental one ; better, I say, have no tail than no beast.

In some cases we find that the eruption and the swelling extend all the way up the tail. This looks very alarming, but as long as the tail retains its normal temperature throughout the extent of the swollen portion, and a degree of movement, there is nothing to be feared. Keep such cases well protected from cold, and dress the swelling and eruption twice or three times a day with flour—than which I have found nothing better, not only for reducing the intensity of the local inoculative action, but to prevent its spreading and assist in the drying up of the exudate. Such cases are always accompanied by a marked degree of fever, and in the case of cows for a few days they go a little off their food and milk. They generally end by the diminution of the swelling, drying of the exudate, and by the formation of sloughs in one or more places, which after a time heal up, requiring in the meantime no treatment beyond occasional irrigation with carbolised water, or dusting with any drying disinfecting powder to keep down smell. These are the ordinary and favourable terminations of inoculation. The average time required for the completion of the process being, from the day of operation to that of dismissal, as follows :—

Period of development	9 to 14 days.
„ maturation	4 to 7 days.
„ decline and healing up . .	14 to 21 days.

Calves and young stock have never, in my experience, required any attention after the operation ; they get over it very easily, and very often without the loss of any portion of the tail. Bullocks come next in point of ease with which they pass through it; so that it may be taken that it is milking cows chiefly that require watchfulness and careful treatment from the hands of the operator ; but I would here remark, if I have not already done so, that it is surprising how well they do in most cases from beginning to end of the process. They rarely, as I have said, miss a feed, are rarely affected in their milking, and they always feed and milk even better, after it is all over, than they did before the operation.

The unfavourable conditions, where the operation is in the hands of a careful person, should be very few, and consist in the inoculative action locating itself in some organ or part of the body where its presence and consequences arising therefrom, often proves fatal. They arise chiefly from neglect of some of the necessary precautions I have pointed out, and frequently as a result of injury after the operation. We have sometimes spreading of the inoculative action up the tail, in so rapid a manner, that before the operator can arrest its progress by amputation, the mischief is done and the process has spread from the head of the tail to the parts adjacent. The symptoms of this condition are a swollen, cold, deadened, limp condition of more or less of the tail. This is sphacelus, or death of the tail, arising from the intensity of the local action, leading to plugging of the blood-vessels. It may be known by its coldness, loss of sensation, and the bluish black colour of the skin. It may be arrested, and prevented from spreading to the rump, by free amputation and the application of the hot iron to the stump. There must be no false delicacy in such cases, and let there be no mistake about the portion removed—better to remove two or three inches of good, sound tail, than leave the smallest portion whose life has begun to go. I have saved lots of such cases, and have never scrupled about removing the whole tail even, if I thought it necessary to do so. Better no tail (again) than no beast, and its loss does not seem to put them much about.

In others cases a circumscribed swelling occurs in some part of the body, but most usually on the part of the ischium on either side of the head of the tail. These swellings are always the result of a blow received just before or after the operation, and depend upon the localization of the inoculative action in the part. A hard swelling, hot and painful, and frequently productive of lameness, is formed, which, if it is going to run a favourable course, does not spread, but in process of time gradually softens. The mass inside liquefies beneath the skin, which latter finally breaking at a point, the contents gradually escape, and the parts healing up, the animal is left none the worse. During the formation of the abscess some go off their food and milk, others do not.

The really most unfavourable termination to inoculation is where the inoculative action spreads to the muscles of the haunch or back, or to any other part of the body that has been severely bruised or injured in any way; or what is worse, when it spreads from the tail to the anus and vulva, and from those parts inside to the bowel and urino-genital organs. Many cases of the latter get better if the swelling extends no further than the vulva, but if the process does spread and extend inside they end fatally. The symptoms are, more or less, loss of appetite, symptomatic fever, inability to remain for any length of time in a standing posture, swelling of the external parts, discoloration of the skin, difficulty in passing fæces and making water, and straining. Such cases should be destroyed, as they are hopeless, in fact they are the only hopeless ones I have met with. I think they are very apt to happen in the case of animals recently calved, especially if the calving has been difficult—hence my reason for advising the delay of inoculation in the case of newly-calved cows to at least three weeks afterwards, or even longer if the parts be considered weak.

In those cases mentioned, where the inoculation extends to the haunch there is a danger of a fatal termination, from the beast losing the use of the limb, and so getting down; where, however, they retain their ability to move about, rise easily, and take their food, they generally come all right, and are best assisted to this end by being turned into a comfortable loose box. I have not found that any application to the swellings is of any benefit, but, on the contrary, am of opinion that interference with them frequently makes them worse. Such are the unfavourable terminations; formidable as they,

however, appear on paper, it must be borne in mind they are not really so in practice, and that the worst of them, those ending fatally, are of comparatively infrequent occurrence.

Where care is taken in undertaking and carrying out the inoculation, the mortality need not exceed two per cent.; such at any rate is mine, and I see no reason why any one should have a higher rate, providing they go about the work carefully. In my early days my mortality was certainly higher (five per cent.), but I have explained that this arose from the fact that I had everything to learn, and was absolutely ignorant of a great many things, the knowledge and observance of which has since led to better results.

In the foregoing pages I have endeavoured to explain and illustrate the theory and value of inoculation for the prevention of Pleuro-pneumonia, the precautions to be exercised, the mode of performing the operation, with the favourable and unfavourable results. My statistics show the numbers done, the conditions under which they were done, so far as being infected or otherwise is concerned, and the loss attendant thereon; but as the main facts, which really point to the value of the operation, may not be just at once grasped, I will summarize my subject and my experience in the following conclusions:—

1. Inoculation is based upon the theory of Pleuro-pneumonia being an eruptive fever.
2. Inoculation is the application to a healthy animal of the virus of Pleuro-pneumonia.
3. Inoculation does not produce Pleuro-pneumonia.
4. An inoculated animal does not infect another animal.
5. An inoculated animal cannot contract Pleuro-pneumonia.
6. The time occupied by the operation is from four to eight weeks.
7. Inoculation in the case of milk cows does not materially interfere with their milking.
8. Inoculated animals thrive better after the operation, and are stronger and freer from other ailments, than those not inoculated.
9. The loss arising from the operation need not exceed 2 per cent.
10. From the fact that an inoculated animal is exempt from the disease, and that the average time required to develop and mature an inoculation is from fourteen to twenty-one days. That period may be accepted as the time required to arrest an outbreak.

In drawing this paper to a close, I would thank the Highland and Agricultural Society of Scotland for this opportunity they have afforded me of laying my experience, in a plain manner, before the great mass of stock-owners which the Society represents. I would ask them to bear in mind that I have penned only plain practical facts, not theories, and that these facts can be verified by close upon a hundred cattle-owners in the area of my practice alone, who have had abundant reason to be thankful for the good the successful employment of inoculation has conferred upon them. For any crudity the paper may contain I have to offer this apology, it has been put together in the spare minutes only of a busy life, and by one with no pretensions to being a literati. I hope I have shown sufficiently clearly that, in the event of another visitation, the country need no longer depend solely upon the working of the Contagious Diseases (Animals) Act, for that in inoculation for prevention of Pleuro-pneumonia we have a measure which does its work with a minimum of loss and inconvenience to the owner, and with a certainty of so much gain to the public, that it ought to be bracketed in the Act (with the slaughtering of the affected) as compulsory.

PARTURITION IN THE ELEPHANT.

THE very interesting article on the elephant, which appears in our list of contributions from the pen of Mr. J. H. Steel, Army Veterinary Department, and which cannot but prove of immediate value to veterinary surgeons serving in India and Burmah, is to some extent supplemented by a paper on the breeding of elephants in captivity, written by Mr. George Arstingstall, elephant trainer for Barnum, and published in the *American Journal of Comparative Medicine and Surgery*. The breeding of elephants in captivity, writes Mr. Arstingstall, is not very common. Elephants bred in captivity are spoken of by Œlian, even in the days of ancient Rome; but from that day to this it has been a rare occurrence, even in India and Ceylon. In Ava, however, it is quite a common thing, as the elephants are there allowed to live in a semi-wild state. Their mode of copulating is a subject which has excited considerable interest; also the age of maturity or period when they are capable of breeding. It has generally been stated that the elephant is exceedingly modest, even more so than man; this, however, appears to be an erroneous statement. The only clear reason why they are not anxious to perform the act is, that they are kept upon such low diet to keep them under control, that they are, in reality, in a weak and debilitated condition, and their passions not easily aroused. When highly fed, however, they give every evidence of a strong desire to copulate, and when the female is in heat the power of man is utterly unable to restrain them.

The observations of Mr. Corse, who had a large number of elephants under his charge, was that they would copulate, even when at work, in spite of all their drivers could do. The record of his observations seems to be very accurate. First he gives the record of an elephant born October 16th, 1789, which was a male thirty-five inches high. The first year it increased in height eleven inches, measuring forty-six inches in height; the second year it gained only eight inches; the third, six inches; fourth, five inches; fifth, five inches; sixth, three and a-half inches; seventh, two and a-half inches—at that time measuring six feet four inches in total height.

The males grow more rapidly than the females; but in one young female, which became pregnant at the age of sixteen years, in which actual measurements were recorded for five years previous to conception, the animal gained only six inches; but, during the twenty-one months of her first pregnancy, she gained five inches in height. Seven months later she again became pregnant, but during the second pregnancy gained only one-half inch. From this we must infer that the females gain slowly during their early years, but when they become pregnant at an early age increase rapidly in size.

Mr. Corse was inclined to think that the females became pregnant from the fifteenth year on, and that females, under natural circumstances, were fully matured by the nineteenth year. Further than this, he had an opportunity of knowing accurately the days of copulation, and had the pleasure of following the case up to the day of delivery, the history of which is as follows: The bull elephant had connection with the female twice on the 28th and twice on the 29th of June, 1793, the four connections being within sixteen hours. The manner of copulation and the time occupied was the same as is commonly observed in the horse. Three months after connection the breasts began to enlarge, and continued gradually to increase until a few weeks before delivery, when their enlargement was more rapid. On March 16th, 1795, she gave birth to a male, which measured thirty-five and one-half inches in height. This would fix the term of pregnancy at twenty months and eighteen or nineteen days. The infant sucked the milk from the breast with the mouth, often encircling the mammæ with the trunk, apparently to increase the flow.

In the early spring of the following September, 1795, the animal was in heat, and readily took the male. At the end of a few days the female positively refused to take the male, and when he attempted to take liberties he was treated to a kick in the face, and all attempts at copulation were stopped. As he (Mr. Corse) left the station before she gave birth to the second elephant, he could not state positively the duration of the second gestation.

The signs of heat he states to be a slight swelling and congestion of the vulva, which also descends to a slight degree. The measurements of the penis were given at two feet four inches to two feet six inches, and from fourteen to sixteen inches in circumference.

The reason given for their not breeding in captivity is that they are commonly kept on such low diet, to render them docile and under perfect control; but as soon as they are highly fed, it is almost impossible to keep them from copulating and breeding. Another interesting fact in connection with the elephant, is that it is subject to a great variety of diseases. In India it is said that about fifty per cent. die within the first year of their captivity. Again, he states that they often captured the female when carrying their young, and that the young, under such circumstances, are always smaller than those born in captivity, by some four or five inches. This fact, however, is ascribed to the depressing influence which the animals are subjected to gain perfect control over them.

The breeding of elephants in this country (United States), however, is of the most recent date, and only two have come under my personal observation, the first being born at Philadelphia, Penn., on March 10th, 1880, and the second at P. T. Barnum's Bridgeport winter quarters, at 8.10 o'clock p.m., February 2nd, 1882.

Close observations were taken of the act of copulation, during pregnancy, and of the delivery.

The mother of the second is named Queen, and is between twenty-eight and thirty years of age. The period of gestation was not quite as accurately determined as the one above quoted, as the bull was allowed access to her for several weeks; but dating from last-known connection to the day of delivery, makes the period of gestation a few days less than twenty months. Conception may have followed the first act, which would increase the time a little.

For the first few months the animal appeared as usual, but as she advanced towards full term she grew heavy and sluggish, until the last month, when she became decidedly lazy. One of the earliest symptoms noted was the enlargement of the mammæ, which in the elephant resemble the human, both in general outline and position, being in the pectoral region. From the fourth month the mammæ were quite prominent, but developed slowly until the last few weeks, when they rapidly gained in size, until they were about as large as those of an ordinary Durham cow. As near as could be determined, each organ would measure from six to eight inches from base to point of nipple, and at the base about twenty-four inches in circumference. Each nipple was covered until the day of delivery with a scaly coating.

On the morning of February 2nd, 1882, the animal appeared about as usual, but during the forenoon the scaly crusts over the nipples peeled off, and a watery, mucous discharge was noticed coming from the numerous openings in each. Close observation revealed the fact that each nipple, instead of having a single or common opening, had several—the right eleven, and the left thirteen. About two hours before delivery there was a slight watery discharge from the vagina, and it was plain that the lips of the vulva were swollen, the vessels distended with blood, which appeared as so many blue lines. When these symptoms were first noticed, the Queen was separated from the rest of the elephants, placed in a room by herself, and securely

fastened. She kept on eating, and seemed perfectly well until twenty minutes before the baby was born. From that time until birth she appeared a trifle uneasy, but gave no evidence of positive labour pains. The delivery was very sudden, and occurred while she was standing, having previously separated the posterior extremities to a slight degree.

The baby presented head and front feet first, enclosed in its membranes, and appeared to be going up and out of the rectum, which appearance was accounted for by its passage over the pubic arch, and in less than three minutes it had dropped to the ground. The mother instantly straightened up, crossed her posterior extremities, and by rubbing them together soon severed the cord. The little one lay perfectly quiet, and apparently was not breathing; but the mother, as soon as the cord was broken, turned round, and with one of her anterior feet struck the membranous sac quite forcibly, which instantly broke with a loud report. After rupturing the membranes, she placed her foot on the thorax, and pressed it with the appearance of considerable force, raised it and pressed again, and repeated this operation several times, until the little one began to breathe, and gave positive evidence of life, when she ceased and appeared satisfied. Now, for the first time, she was considerably excited. This stage of excitement lasted for about half an hour. About this time the baby made several attempts to gain his feet, and finally succeeded, but was quite weak on his legs for a number of hours.

The mother gave every evidence of suffering more pain after the delivery, and until the placenta was discharged, than in giving birth to the baby. There was a low beam near by, which she got astride of, and settled down upon quite heavily until the after-birth was discharged, which occurred two hours after the fœtus. This was accompanied by a slight discharge of blood; the animal stepped back from over the beam, and appeared perfectly relieved.

Five hours after birth the baby walked up to the mother, turned the trunk up over its head, and commenced nursing. Two hours after delivery the baby was weighed, and turned the scale at one hundred and forty-five pounds, and measured thirty inches in height. The little one was of a light mouse-gray colour, and has rapidly grown active and playful.

The milk soon became quite abundant, is nearly the same in colour as that of the cow, but very sweet in taste, closely resembling that of the cocoa-nut milk. The quantity secreted daily is rather more than in the cow, and previous analyses have proven that it is much richer. The quantity of cream, as compared with the best Jersey cow that could be obtained, was found to be one-eighth greater in bulk.

Reference is made to the following works, which may be advantageously added to the bibliography given us by Mr. Steel:—

"Hist. des Elephants," Paris, 1850; "Petrus ab Hartenfels, Elephant Topographia Curiosa," 15, 17; Browning's "Siam, its Kingdom and People," Vol. I., p. 219; "Livingstone's Travels" (*passim*); "Philosophical Transactions of the Royal Society," London, 1799; "Journal of the Academy of Sciences," Philadelphia, 1880.

INTERNATIONAL VETERINARY CONGRESS.

THE fourth International Veterinary Congress not having been held in 1870, as had been resolved at that which took place at Zurich in 1867, it was decided at the National Veterinary Congress assembled at Brussels last year, that it should be arranged to have the fourth Congress meet in that city in 1883, when the fiftieth anniversary of the foundation of the Belgian Veteri-

nary School, at Cureghem, Brussels, will be celebrated. The veterinary surgeons of all nations are invited to take part in the business of the Congress, and assist in the elucidation of the subjects brought before it. The amount of subscription for these is ten francs only.

A programme will be drawn up shortly of the subjects to be discussed, and reports thereon, for distribution previous to the opening of the Congress. All communications with regard to these should be addressed to Professor Thiernesse, Cureghem (Bruxelles-Midi). Dr. Wehenkel, of the Brussels Veterinary School, is the Secretary.

PRESENTATION TO PROFESSOR SMITH, OF THE ONTARIO VETERINARY COLLEGE.

SOME time ago it was considered that the great services of Professor Smith to the veterinary profession in Canada demanded some acknowledgment. A list having been opened, subscriptions came in freely from many parts of America.

The testimonial—an admirable full length oil painting of the professor, with an address—was presented on March 31st, 1882, in the large museum of the Ontario Veterinary College. The Hon. A. Crooks, Minister of Education, Drs. Barret and Thorburn, and other distinguished citizens of Toronto, as well as a large gathering of graduates and students, were present. The address having been read, Professor Smith briefly and gracefully replied, thanking the donors, and assuring them that his efforts for the advancement of the profession would in no way be relaxed in the future.

The following is the address :—

To Prof. A. Smith, V.S., Edin., Principal Ontario Veterinary College, Toronto.

Dear Sir,—We, the undersigned, graduates of the Ontario Veterinary College, desirous of testifying to our appreciation of your valuable services in the cause of our profession, take the present opportunity of expressing in this public manner a token of our feelings in regard to yourself.

To you and your indomitable perseverance is due the high standing of veterinary science in this province, and but for your efforts we feel convinced that the College of which you are the distinguished Principal, and to which we look with pride as our Alma Mater, would not to-day occupy the position it does, and might not indeed have an existence.

For many years past you have unselfishly devoted your time and talents to the development of our profession, and notwithstanding the many obstacles you have encountered, you have overcome them and made for yourself a name and position which we shall always remember with proud satisfaction.

Some of us have not yet forgotten the state of veterinary science in this province before your time. There was then no system or educational training to fit men for the practice of a profession which, from the very force of natural causes, is one of the most difficult in the healing art. The whole science was in the hands of men who had none of the advantages of thorough instruction, and in too many instances they were wholly ignorant of the rudest elements of veterinary knowledge. This is now changed, and we have ample means of training students, of furnishing them with a practical knowledge of their calling in life, and we can boast of a system of instruction and a dignity of purpose second to none of the other learned professions.

To you, Sir, do we give the well-deserved credit for all this, and we do not flatter you by an idle term when we say that in view of the result and the extent of your labours, you are indeed the Pioneer of veterinary progress in Ontario.

As a public recognition of the valuable services you have rendered, we, therefore, beg that you will accept this Portrait of yourself, accompanied in this by many kind remembrances of your courteous manner and careful instruction as our Principal, as well as with many hopeful wishes for your future happiness as our Friend and Counseller.

Signed on behalf of the Graduates,

Toronto,
March 31st, 1882.

J. H. WILSON.
J. S. CEASER.
J. T. DUNCAN.
C. H. SWEETAPPLE.
E. A. A. GRANGE.
WILLIAM COWAN.
A. A. F. COLEMAN.

ANNUAL DINNER OF THE ARMY VETERINARY DEPARTMENT.

THE Annual Dinner of the Army Veterinary Department was held at the Criterion Restaurant, Piccadilly, on June 9th. There were present Messrs. Collins, Gudgin, Lambert, Tatam, Fleming, Meyrick, Hinge, Walters, Walker, Dwyer, Clayton, Rowe, Boulter, Jones, Matthews, Cox, Burt, Reilly, Rayment, Hagger, Cooper, and Woods.

Proceedings of Veterinary Medical Societies, &c.

ROYAL COLLEGE OF VETERINARY SURGEONS.

REPORT OF PROCEEDINGS AT A SPECIAL MEETING OF COUNCIL, HELD ON THE 20TH JUNE, 1882.

Present:—The President (Mr. George Fleming); Professors Robertson, Simonds, Brown, Pritchard; Messrs. Batt, Blakeway, Cartledge, Cartwright, Cox, Dray, Greaves, Gowing, Harpley, Santy, Simcocks, Simpson Taylor, Whittle, Woods, Wragg.

The SECRETARY read the notice convening the meeting.

The minutes of last meeting were read and confirmed.

Letters were received from General Sir F. Fitzwygram, Professor Walley, Professor Williams, Mr. Broughton, and Mr. Reynolds, expressing their inability to attend the meeting.

Presentations to the Library.

The SECRETARY announced that Mr, Sampson Gamgee, Professor Brown, Dr. G. Evans, and Professor Law had made presentations to the library, and that pamphlets from Monsieurs Chauveau, Cornevin, and Siegen had also been received.

On the motion of Mr. DRAY, seconded by Mr. TAYLOR, a vote of thanks was passed to the donors.

Notices of Motion.

The SECRETARY stated that Mr. Simcocks had given the following notices of motion :—"At the next meeting of the Council of the Royal College of Veterinary Surgeons, to propose 'That bye-law 22 be amended by striking out the words "not less than six," and substituting there for the

words, "all except the Examiners in Botany," so that the first paragraph of said 22nd bye-law shall read as follows, viz., "Of the examiners all, except the Examiners in Botany, shall be members of the College.'" Also, "At the next meeting of the Council to move 'That in view of the fact that non-qualified persons are frequently appointed as Inspectors under the Contagious Diseases (Animals) Act, 1878, even in districts in which the services of qualified veterinarians are obtainable, we cause steps to be taken to represent to the Lord Lieutenant of Ireland and the English Privy Council the unfairness and impropriety of thus excluding members of the veterinary profession from some of the few public appointments which are open to them.'"

The SECRETARY stated that Mr. Casewell had written a letter two or three months ago, stating that he had lost his diploma. He was asked to furnish particulars, which he had done, and which were satisfactory.

The Secretary was instructed to send him the usual certificate.

Letters were received from Messrs. Cartledge, Cox, Broughton, Cartwright, and Wragg, acknowledging the honour of their election as Vice-Presidents.

The SECRETARY stated that he had received several letters enclosing packets of pig powder which had been sent to persons all over the country by a member of the Royal College. The envelope enclosing the letter had on it the crest of the Royal College, and also under it the words, "Royal College Veterinary Surgeons, London," and the Post Office authorities, thinking the letters had been sent from Red Lion Square in London, and failing to find the addresses of those to whom they were sent, had returned them to the premises of the Royal College of Veterinary Surgeons, which caused a great deal of unnecessary trouble. He had written the sender of the letters for an explanation, and informing him that the course he was pursuing was illegal, but he had received no reply, and he wished to know what steps ought to be taken under the circumstances.

Some conversation ensued, in the midst of which

Professor ROBERTSON stated, that it was a very common thing for the Veterinary Surgeons of Great Britain to issue their letters with stamps similar to that on the letter in question.

Professor SIMONDS thought the solicitor of the College ought to be consulted on the subject, and made a motion accordingly.

Mr. TAYLOR thought it ought to be made clear whether any veterinary surgeon had a right to use the arms of the Royal College.

The SECRETARY said he had been often asked if veterinary surgeons could use the arms of the College without paying the tax, and he had replied that, in his opinion, they would have to pay a guinea a year for their use, as well as the College.

The PRESIDENT thought the practice pursued by the gentleman in question was most reprehensible, because he had not only used the arms of the College on the outside of the envelope, but he had placed the address of the Royal College of Veterinary Surgeons under it, so that those who had received the pig powders might have thought they were receiving them from the College.

Mr. BLAKEWAY seconded Professor Simonds' motion to consult the solicitor, which was agreed to.

Mr. CARTLEDGE suggested that as the gentleman in question was a personal friend of his own, and a respectable member of the profession, he would undertake to see him and consult him on the subject before applying to a solicitor.

After some conversation, this course was ultimately agreed to, but in the meantime the Secretary was to consult the College solicitor.

Scotch Examinations.

At the several meetings of the Scottish section of the Court of Examiners, held at Glasgow and Edinburgh on the 10th, 11th, 12th, 13th, and 14th of April, fifty-two candidates passed, and seven were rejected; and for the first examination, fifteen passed, and twenty-seven were rejected.

Professor ROBERTSON said he had had a letter from Professor Walley, asking that the results of the examinations of the Scotch schools should be given separately.

After some conversation as to what had been the usual course that had been pursued,

The PRESIDENT thought it would be as well to write to Dr. Dunsmure, asking him to keep the names of the students from the different schools separate in future.

The Secretary was instructed to write accordingly.

Professor ROBERTSON wished to ask, on the part of the teachers, whether it was understood that they, both in England and in Scotland, had the privilege of attending the Boards of Examiners *ex-officio*, or whether they were there on sufferance. They only wished to know the position in which they stood, because they had no intention of being present on sufferance.

Professor SIMONDS said he had always attended the examinations if he was in London, thinking he had a perfect right to do so; but if it had turned out that he was present only on sufferance—merely because he called in—he would not have liked it.

Professor BROWN said there used to be a notice asking the principals to attend. Since he had not received any such notice, he had not attended; he took it as a hint that he was not wanted.

After some discussion, on the motion of Mr. HARPLEY, it was agreed to defer the consideration of the subject to the next meeting, so that the Secretary and members of Council might have an opportunity of consulting the bye-laws, for the purpose of seeing whether they had any bearing on the matter.

Appointment of Committees.

The following were appointed members:—

Parliamentary Committee.—The President, Professors Brown, Robertson, Pritchard, Simonds, and Mr. Collins, General Sir F. Fitzwygram, Mr. Greaves, and Mr. Harpley.

Museum.—The President, Professors Pritchard and Axe, and Mr. Dray.

Finance.—Professor Simonds, and Messrs. Cartwright, Dray, Greaves, Harpley, Taylor, and Wragg.

House.—Professor Pritchard, Messrs. Batt, Gowing, Greaves, and Harpley.

Registration.—The President, Professors Robertson, Simonds, and Pritchard, and Messrs. Batt, Cartwright, Collins, Dray, Simpson, and Wragg.

Library.—Professors Robertson and Axe, and Messrs. Blakeway and Harpley.

Examination.—The President, Professors Simonds and Pritchard, General Sir F. Fitzwygram, Mr. Collins, Mr. Harpley, Mr. Woods, and the Principals of the different schools.

Election of Board of Examiners.

The PRESIDENT called attention to the fact that the five years had expired since the present Board of Examiners had been elected, and it was now for the Council to decide as to whether the election should take place at the present meeting or at the beginning of next year. If the election took place now, it would be inconvenient, because there would be only a short interval

before the July examination was held; and he thought it would be better if the election took place towards the end of the year.

Professor SIMONDS suggested that the members should be nominated now, and that they commence their duties on the 1st January next.

Professor ROBERTSON said he would propose at the next meeting that the members of Council be prepared to nominate members of the Board of Examiners.

Mr. P. TAYLOR moved that each member of Council, before voting for Examiners, be furnished with a list of the retiring members, stating their duties.

The motion was seconded and carried.

The Secretary's Salary.

Mr. DRAY then made a motion, of which he had given notice at a previous meeting, that the Secretary's salary be increased, and that his salary as Registrar be also increased, so that the proposed increase would raise his salary to £200. This increase he proposed should date from the last annual meeting. Since Mr. Hill had been appointed his duties had been continually increasing, and he (Mr. Dray) considered that the salary paid was not commensurate with the duties performed. As Treasurer he had had opportunities of judging of Mr. Hill's assiduity and energy. He trusted that the proposal he had made would meet with a unanimous vote of approval.

Mr. GOWING seconded the motion.

Mr. TAYLOR called attention to the sending out of voting-papers by the printers, and asked whether the Secretary gave it his personal attention. Considering, also, that as the Council were agitating for the building of a new home for the profession, and looking to the present condition of the funds, he thought they were not in a position to make any immediate advance on the Secretary's salary, and he moved an amendment to that effect.

Mr. GREAVES thought the matter had come before the Council rather unexpectedly, and that the better way would be to discuss it at the next quarterly meeting.

Mr. COX said he was pleased to hear the high eulogium that had been passed on such a worthy officer of the Council. The labourer was worthy of his hire; and he did not know where the Council could find another such man as Mr. Hill to undertake the duties and perform them so efficiently at so low a salary. He would willingly vote that it should be 200 guineas a year; but he hoped that before the meeting was over they would be able to tell Mr. Hill that the increase of his salary had been considered in a liberal and proper spirit.

After some observations by other members of the Council, including the PRESIDENT, who bore his testimony to Mr. Hill's excellent qualities as a Secretary, and to his ability and integrity,

Mr. TAYLOR said that after the expression of opinion he had heard, he would willingly withdraw his amendment.

The motion of Mr. Dray was then put and carried unanimously.

The SECRETARY briefly returned thanks for the mark of confidence shown towards him by the liberality of the Council, and explained that the reason why some few members did not get their voting-papers was because they would not trouble to send in their proper addresses. He was continually exhorting members to send notice of any change of address, and was always glad to receive complaints of any kind, because if anything were wrong it could be set right, and would be the means of enabling him to issue a very correct register.

Special Cases.

The case of a member of the Royal College who had been convicted of fraud in one of the Colonies, was again brought up for the consideration of the Council, as to what steps, if any, ought to be taken to strike him off the register. This, with another case of a somewhat similar but more aggravated nature, now pending in one of the Metropolitan police-courts, was referred to a committee, consisting of the President, Professor Pritchard, and Messrs. Dray, Cox, and Batt, who would subsequently report the result of their inquiry to the Council, and then such steps would be taken in the matter as were deemed necessary.

The late Deputation to the Lord President of the Privy Council.

The SECRETARY read the following letters which had been received in reference to the subjects brought forward in the memorial presented to Earl Spencer :—

"Veterinary Department, Privy Council Office,
"44, Parliament Street, Westminster, S.W.
"20*th May*, 1882.

"Sir,—Referring to the deputation which waited on the Lord President on the 26th ultimo, and presented a memorial praying that Her Majesty's Government would grant to the Council of the Royal College of Veterinary Surgeons such assistance as would enable them to secure a proper edifice, I am directed to inform you that His Lordship communicated the memorial in question to the Lords of the Treasury, strongly urging that its prayer might be complied with, and to enclose, for the information of your Council, the reply which the Lord President has received to his application.

"I am, sir,
"Your obedient servant,
"C. W. PEEL.

"The Secretary Royal College Veterinary Surgeons,
"10, Red Lion Square, W.C."

"Treasury Chambers,
"16*th May*, 1882.

"Sir,—I have laid before the Lords Commissioners of Her Majesty's Treasury your letter of the 6th instant (72,397), forwarding a memorial addressed to the Lord President of the Council by the Royal College of Veterinary Surgeons, praying that the Government will be pleased to make a grant to the Council of the College to assist them in obtaining an edifice more suitable to the purposes of the institution than that which they at present occupy. I am to request that you will state to the Lord President that the memorial, etc., has been carefully considered, but my Lords regret that they cannot accede to the application for a grant to the Royal College of Veterinary Surgeons.

"My Lords are deeply conscious of the importance of the study of the diseases of animals as bearing on human diseases, and they are confident the zeal of the veterinary surgeons of the country will not allow this study to languish because it does not receive the doubtful benefit of public assistance.

"The precedents to which attention is called in the memorial belong to a another generation, and, as is confessed, have not recently been followed.

"I have, etc.,
"(Signed) LEONARD COURTNEY.

"The Clerk of the Council,
"Veterinary Department Privy Council Office."

The PRESIDENT said that, notwithstanding these communications, he thought the case was not hopeless. Since the letters had been received, he had been considering what further steps ought to be taken. Mr. Cartwright (member of Council) was particularly intimate with Mr. Cotes, one of the Lords of the Treasury. Mr. Cotes offered at one time to accompany the deputation, and since the refusal of the Government to render any assistance, he (the President) had requested Mr. Cartwright to see Mr. Cotes to ascertain his views on the matter. He (the President) had also taken steps in order that Lord Aberdare might be asked to see Mr. Gladstone specially on the subject. Lord Aberdare was one of the Premier's most hard-working colleagues, and if he could see Mr. Gladstone he would no doubt be able to state the case fairly. He (the President) questioned whether Mr. Gladstone had ever heard anything at all of the memorial. Another way that might be adopted was to get Members of Parliament who had influence with the Treasury, to visit the Lords of the Treasury and explain the case to them, because he thought the letter received had been the work of one of the subordinates. He trusted that the action he had already taken with regard to Lord Aberdare would meet with the approval of the Council, because a few words privately often did more good than any public demonstration.

Mr. CARTWRIGHT detailed the interview he had had with Mr. Cotes on the previous Friday. Mr. Cotes took notes as to what the terms of the memorial were, and said that he (Mr. Cartwright) had better see him again shortly.

The PRESIDENT said he had written to Mr. Cotes before the refusal, but he believed the letter had not been received in time. He was told by Mr. Peel that Lord Spencer had sent in the memorial to the Treasury with a very strong covering letter, and that unless some steps were taken they would get the same answer. He (the President) believed if Earl Spencer had remained in England the result would have been different.

The proceedings then terminated with a cordial vote of thanks to the President.

NORTH OF ENGLAND VETERINARY MEDICAL ASSOCIATION.

THE annual meeting of this Association was held at the Turk's Head Hotel, Grey Street, Newcastle-upon-Tyne, on 26th May, 1882.

The President, Mr. H. Hunter, occupied the chair.

Present:—Professor Walley, Messrs. J. E. Peele, Durham; W. Awde, Stockton-on-Tees; J. Gofton, North Shields; M. Hedley, Darlington; D. McGregor, Bedlington; A. Chivas, Corbridge; D. Dudgeon and G. M. Mitchell, Sunderland; W. J. Mulvey, Bishop Auckland; W. W. Smart and W. S. Pringle, Gateshead; C. Hunting, South Hetton; W. Hunter, A. Hunter, J. H. Wilson, C. Stephenson, —. Wright, and the Secretary, Newcastle-upon-Tyne.

Apologies for non-attendance were received from Messrs. H. E. Wilkinson, W. T. Briggs, G. R. Dudgeon, C. Sheatley, H. Peele, T. Foreman, and T. Greaves.

The minutes of the previous meeting having been taken as read, the Secretary nominated Mr. Elliott, of Stockton-on-Tees, as a member of this Association.

The President, Mr. H. HUNTER, Newcastle-on-Tyne, then delivered his inaugural address, as follows:

Gentlemen,—In taking the chair as your President, my first duty is to thank you for the honour you have conferred upon me, and I can assure you that I shall endeavour, to the best of my ability, to fulfil the duties of the office and advance the interests of our Association and the profession gene-

rally, knowing that I may rely on your assistance and support. I do not intend troubling you with any lengthened remarks, as the chief topics of professional interest have been almost exhaustively treated during the last few months, and as my old friend and fellow-student, Professor Walley, has kindly consented to read a paper, which I am sure will very profitably occupy our time. I cannot, however, allow this opportunity to pass without thanking him personally, and on behalf of our Association, for the very excellent papers he has brought before us, no doubt at very great inconvenience to himself.

The past year will be ever memorable in the annals of our profession as the one in which the Veterinary Surgeons Act was passed, by which the title of veterinary surgeon is protected, thus remedying a defect in our Charter of Incorporation. It is true that many of us may not feel any immediate benefit, yet there can be no doubt that it will ultimately be of the greatest possible service, and will tend very greatly to raise the status of our profession. Our best thanks are due to the Council of the Royal College of Veterinary Surgeons, and more especially to our President, G. Fleming, Esq., for his untiring efforts by which the passing of the Act was secured. Our veterinary medical associations, both by petitions and personal influence, rendered great service, and materially assisted in passing the Act, our own Association being ably represented by our late President, Mr. Mulvey.

The holding of a National Veterinary Congress is an event the importance of which cannot be overrated, and the promoters are to be congratulated on its great success, large numbers of the profession not only from the United Kingdom but also from the colonies attending, and many subjects of great importance to the profession and also to the public being discussed, thus bringing our claims as a scientific body prominently forward. I sincerely trust the Congress will become a regular institution, and will be held at such regular periods as may be thought desirable.

The subject of veterinary education has of late engrossed a great deal of attention, and no subject could be more profitably discussed. The matriculation examination has been made uniform. This certainly is a step in the right direction, and although the compulsory standard is not high, yet the minimum amount of education required may well answer our present requirements.

We are all pretty well agreed as to the value of practical knowledge and manipulative skill, but great diversity of opinion prevails as to the best means of obtaining them. Some assert that practical knowledge can only be ensured by compulsory pupilage ; others say that this may be a great injustice, and that sufficient knowledge can be obtained at the teaching schools and be sufficiently tested by the practical examination. This I think impossible, for however able and painstaking the teachers may be, they cannot have the opportunity of imparting to each individual student the amount of practical knowledge and manipulative skill which they should have before obtaining their diploma ; and you may depend that however scientific they may be—and no one can value scientific education more than I do—it will fail to be appreciated if not associated with practical knowledge to enable them with confidence and skill to perform the every-day duties of their profession. In the same way I think it is equally impossible for the examiners to sufficiently test the practical acquirements of the students. I am thus driven to the conclusion that the student must be required to obtain this knowledge by pupilage. My own idea is that a youth, say of sixteen or seventeen years of age, on leaving school should go direct to one of the colleges, and after passing the examinations in botany, chemistry, and materia medica, should see not less than two years' practice, if where a shoeing forge is attached so much the better, as he will have greater opportunities of becoming conversant with the principles of shoeing and the diseases of the foot and their treatment,

which form such an important part of the practice in all large towns. After this let him return to college and devote his whole attention to his other studies, and I think any one with average ability and application will become a creditable member of the profession.

The period for which the examiners are appointed expires this year, and it will devolve on the Council of the Royal College of Veterinary Surgeons to appoint a new board; and the time, I think, has arrived when veterinary surgeons may with advantage fulfil the duties of the office, except, perhaps, as regards chemistry and botany. The greatest care should be exercised in their appointment, and none but men of the highest professional standing and literary attainments, thoroughly well versed in their profession, should be appointed—men who will well test the knowledge of the student, and at the same time inspire him with confidence and respect. They should also make themselves conversant with the teaching of the various schools, so that due allowance may be made for some diversity of opinion.

A very influential deputation, organised by our President, has recently waited upon Earl Spencer, K.G., to urge our claims on the Government for aid in obtaining a suitable building, and undoubtedly a very strong case was made out, and it is to be hoped that it may soon bear fruit, and that at last we may be enabled to have a home worthy of the profession.

In concluding these few disjointed remarks, I thank you for the patience with which you have listened to me, and hope this year may be a prosperous one for our Association, that our meetings may be pleasant, and tend to our mutual profit and advantage. (Loud applause.)

Professor WALLEY then read a very interesting paper on "Specificity in Disease," as follows:—

Mr. President and Gentlemen,—The subject I am about to descant upon for a short time—one suggested by my old friend, Mr. H. Hunter—is one of absorbing interest to all, one covering a vast area, one not easily or always understood, and that has been the cause through the whole history of medicine of many discussions. So extensive is it, that in the time at yours and my disposal I can only hope to touch as it were, its fringe; but I trust I may be able to raise a desire in your minds to pursue it further, and that from its discussion something profitable to each of us may ensue.

With the word *specific* as applied to disease there is usually associated in our minds something which is peculiar, either in its origin or character, to a particular affection; certainly, in most cases, something which is occult but none the less special to the malady, and I suppose this *something* at the present day will, in the great majority of instances, be further associated with those ubiquitous creatures—if I may so style them—*germs*; whether this be so or not we usually apply the term specific to some affection in which, by the introduction of one of its fluid or solid products into the organism of a healthy animal, we can induce similar phenomena to those by which it has itself been characterised. Fashion prevails equally in medicine as in less important matters with which the thoughts of men are occupied, and at this moment the fashion is to attribute all diseases to the influence of some specific organism, micrococcus, bacteria, bacillus, or ferment—words, I may remark, of terrible import to the student of medicine, as they mean, before they are even fairly understood, many a weary hour's work, many a sleepless night; and, after all the toil and labour bestowed on them they oft-times take to themselves wings and fly away, or are scattered by the ever-variable winds of pathological teaching. The scientific nine-pins, planted firmly in a framework of microscopic research of one *savant*, are presently knocked over by the merciless bowls of another. One, eminent in research, discerns a specific organism in the products of a particular disease, and draws a wonderful and startling picture of its characters and attributes; another, equally eminent,

presently comes along and (to the intense disgust and chagrin of his antagonist) blurs and blots the attractive sketch by proving that it was only produced by some mal-manipulation of the details of the experiments employed, or that it is at the best some microscopic delusion which the other did not possess sufficient acumen to distinguish.

Again, in dealing with germs themselves, one attributes the results they are said to produce to a material reproduction; another says that they are only carriers of morbific matter; a third, that they are the manufacturers of a principle—chemical or otherwise—which has the power of inducing similar changes in other bodies as those by which it was itself originated.

Amid this conflict of opinions, amid this chaos of ideas, is it any wonder that you and I sometimes stand aghast and ask ourselves, "Where is the truth?" Who are we to believe, or what will be the end of it all? But it is remarkable that while we of an older generation are thus pulled up to a dead stand, the neophyte plunges into the subject as if it were all plain sailing, deals with micrococci as if they were men's heads, the lineaments of whose features were plainly revealed to all observers, and looks contemptuously upon all those who from long habit have come to believe in nothing as being true until its truth is palpably proved. And are we not warranted in nursing this scepticism? When one man discloses he has discovered a special organism in Anthrax, and another shows that a similar organism—one absolutely indistinguishable from it by any physical feature—is to be found in a harmless infusion of hay; and another that the said similar organism can be so cultivated as to become endowed with morbid powers equally as active as those possessed by its fellow; or, again, when a normal secretion —the saliva—is found, with but comparatively slight modifications, to assume qualities of a highly-destructive character, I say, is it to be visited upon us as a defect in mental power that under such circumstances we hesitate to accept as facts mere theories and hypotheses?

Do not for a moment suppose that by these remarks I wish to disparage the great strides that have been made in pathology. I seek not to do so; no person will rejoice more than myself if the causation of specific diseases can be reduced to a tangible and material entity, but I am afraid there is much work to be done ere this can be accomplished, and I, for one, shall accept with some qualification much that may from time to time be put forward until it is raised out of the realm of speculation.

Long has the war between pre-existing life and autogenesis been waged; it is not, I fancy, yet finished, or at least it will again and again crop up in some shape or other. The questions may yet be asked, Is it not possible for that which under ordinary and natural circumstances is harmless or inert to acquire specific characters under extraordinary and abnormal conditions? And though a living unit may not actually spring out of dead matter, may not pre-existing units possessed of definite qualities become so altered in their nature as, in their results at least, to present a striking contrast to their progenitors? Is it necessary that all disease-producing elements must be of a germ nature? May not the bioplasm of the cell elements of the body undergo such modifications by the influence of special agencies as to endow it with new and destructive qualities, and to enable these qualities to be propagated to other living matter of a similar character with which it may come in contact? Or, granted that organisms are the active agents in the production of a disease, is it not possible that under peculiar favourable circumstances those which are ever within, around, and about us may contract specific properties or attributes they do not normally possess? A tissue or a body dies, its vitality is arrested, germ life—bacteria—asserts its dominion over it; and from the degraded débris of the products of disintegration the germs become endowed with terribly destructive qualities. Organisms, I

think, it is now generally admitted, are pretty well harmless, providing the one important factor, a suitable soil, is not forthcoming: just as the seed will not grow if the soil in which it is sown possesses not the necessary nutritive elements, or as the body cannot live if the food presented to it is deficient in the requisite constituents for its growth and nourishment, so will organisms be rendered inert or perish if the ground in which they are sown is not prepared for them.

Two remarkable statements, founded on experimental inquiry, have recently been made in reference to the influence of organisms on the activity of infective matter. The first appeared in the *Practitioner* for August last year, and is made by Deutschmann, to the effect that by inoculation of the iris with the clear supernatant fluid of human tubercular pus no effects followed, but if the solid parts, micrococci, etc., were used, tubercle resulted. In the reinoculations, however, with the products of this artificially produced tubercle no results were obtained until caseation was accomplished, even though micrococci were present.

The second statement occurs in the *Lancet* for 18th February last, and is to the effect that Rosenberger had found that even after the exposure of septic blood and serum to a high degree of heat for a long time (and subsequently filtering and evaporating it) it still possessed infective properties, though in a less degree; but after reinoculation the products more than regained the virulence of the original matter, and were charged with bacteria. To prove that the fluid was sterilized so far as organisms were concerned, Rosenberger in each experiment inoculated with it some extract of meat, which remained for weeks perfectly clear and free from organisms. From the results of these experiments the conclusion is drawn that bacteria are secondary, but perhaps necessary, elements in the morbid process, and that their development is associated with a chemical, or at least an unorganised, poison. Rosenberger, however, believes that the bacteria alone are the means of multiplying the poison in the animal body. He also believes that the development of the specific bacteria in the body after the injection of the sterilised virus is explicable on the assumption that they arise from non-specific virus already in the system.

The editor of the *Lancet* draws attention to the remarkable support given to these theories of Rosenberger by the results of Buchner's experiments with hay bacilli, and by the statement of Rossbach "that in a chemical ferment of a vegetable origin, and free from organisms being introduced into the blood, the bacteria increase with such marvellous rapidity that the condition of that fluid is comparable to that which results from a true infection."

In reference to the origin of specific diseases, I may call your attention to at least one form of disease of this character, which is most certainly originated in numerous instances independently of pre-existing infection. I allude to specific Urethritis in the bull and Vaginitis in the cow. There is a disease the purulent products of which are as certainly and as highly virulent in their properties as any with which we are acquainted, and yet all who have seen much practice amongst cattle well know that it frequently originates in home-bred stocks where contamination is out of the question. I have also seen Variola Canina originate in nursing bitches without the possibility of their having been exposed to the contagium.

In days gone by it was the fashion to look upon tubercle as a degenerated aplastic exudate or as a miserable abortion. Now a mighty leap has been taken, and Toussaint, in the first place, has disclosed that it is due, not to a degraded product, not to a despised unit, but to the ubiquitous micrococcus; and in the second place, Koch has recently succeeded in identifying and cultivating the actual causal organism of tubercle (or what

he believed to be such), and his experiments, which also show that this organism is somewhat similar to that found in Leprosy, have been since repeated by Baumgarten; one of the most important results in my estimation of these experiments is, that they have indubitably proved the identity of bovine with human Tuberculosis. Whether other pathologists will, in the course of extended investigations which are sure to follow those of Koch and Baumgarten, show that the organisms described do not possess the significance attributed to them by their discoverers remains to be seen.

In any case it may be looked upon as pretty well proved that tubercle is not the chance product it was once thought to be, but is as truly specific in its nature as is Syphilis or Small-pox. From a comparatively superficial study of its general characters I was led to (in the year 1872*) make this declaration, and more recently (in 1879†) insisted more strongly upon the correctness of this view. Since the publication of the work last alluded to, natural clinical facts have been rapidly accumulating, and experimentation has still further aided, which bear out the views I have long held as to the nature of this dire malady; practitioners have recorded many cases of transmission of the disease both congenitally and heriditarily, and I exhibit a section of the tongue of a yearling stot recently sent to me by Mr. Masson, of Kintore, which presents all the characteristics of miliary Tuberculosis and of the concurrent inflammatory changes which accompany the morbid process. The history of the case was that of a specific glossitis simply, but on my desiring Mr. Masson to institute inquiries as to the condition of the dam and sire, he elicited from the owner in answer to a query as to whether the former had ever been observed to show any symptoms indicative of tongue disease, the following quaint and suggestive remark: "A, hi, twa year sine she wad ha hir sta' haff fu o' slaver."

Another phase, or supposed phase, in the history of Tuberculosis, has recently been described, viz., its occurrence as a specific stomatitis in young calves. While it would be presumptuous on my part to deny the accuracy of the diagnoses made, seeing that I have not yet seen the particular form alluded to (I have written to several gentlemen for specimens, but the answer has always been, "Can't send them, the cases get well"), I must, with all due deference to writers on this subject, the opinions of some of whom I highly esteem, decline to accept the statement that the disease is of a tuberculous character. Many years ago Professor Simonds described in his lectures a form of stomatitis which he designated "Malignant Aphtha;" this I have seen in calves, but in all my experience—and it has not been a small one, both amongst healthy and tuberculous breeding cattle—I have seen no mouth affection that presented any characters which I could say identified it with tubercle, and most certainly the statement—frequently reiterated—that the affection is a curable one does not agree with what we know of the incurable nature of tuberculous lesions; moreover, if it is tubercle, are those gentlemen who assert that they often cure the affection acting wisely in so doing? Granted that in tubercle external lesions are healed, is the system restored to a condition of health, or does it not rather still remain tuberculous? I cannot reconcile the statements that have been made on the subject, and most certainly if I were asked to treat such a case—believing it to be tuberculous—I should decline to do so. I am inclined to look upon the disease as diphtheritic rather than tuberculous in its nature.

The importance of the subject of Tuberculosis in reference to veterinary medical sanitary science is being acknowledged more and more every day; veterinary surgeons have for years urged that some legislative steps should

* "Essay on Tuberculosis," *Veterinarian*, Sept., 1872.

† "Four Bovine Scourges," art. "Tuberculosis."

be taken to prevent the indiscriminate use of the flesh and the internal organs of tuberculous cattle, but in vain; most of our attempts in this direction have been ignored or quietly shelved, but similar efforts on the part of medical practitioners have received a very different recognition.

I could not have used more forcible or condemnatory language as to the use of tuberculous flesh for human food than that which I employed (p. 168) in my work on "The Four Bovine Scourges," but I am not aware that it alarmed or interested any of our medical *confreres;* and even the editor of one of the leading medical journals was not courteous enough to acknowledge a copy of the work when sent to him. A recent investigator (Dr. Creighton) into the probable co-relation of animal and human Tuberculosis has been more just to our profession. When medical sanitarians join us, and add their voice to ours, something may be done to check the evils which undoubtedly arise from the daily consumption of the milk from tuberculous cows and of the flesh of tuberculous cattle.

If, as in most other diseases, suppression of milk took place in Tuberculosis, the matter of consuming this secretion would not wear so grave an aspect; but we know that a cow even in the last stages of the affection may give a tolerably large supply of milk. A striking example of this terrible source of evil came under my notice only three weeks ago.

During the course of my periodical inspection of the Edinburgh byres, I observed in one of them a shorthorn cow showing unmistakable symptoms of advanced Pulmonary Tuberculosis, with extensive Tubercular Mammitis. I asked incidentally if the cow gave any milk, and was told she gave three quarts at each meal, and in trying the udder found it was then tolerably full. A few days after I again visited this cow, and found her almost *in extremis* from Dyspnœa, induced by concurrent Emphysema Pulmonum; still giving, however, a large quantity of milk.

The owner, acting on my advice, had her slaughtered, and the autopsy revealed almost universal tubercular invasion of both lungs and the left half of the udder.

Bouley has recently shown that the disease can be transmitted by inoculation with the juice of muscle. At one time I should certainly have hesitated to admit that flesh could be at all innocuous unless there was extensive Lymphatic Tuberculosis, as we do not see tuberculous lesions in muscles generally; but Bouley's experiments have imparted a graver aspect to the question. It is not a pleasant thing for a man to sit down to a breakfast of *devilled* kidney, and find on cutting off an appetising morsel a mass of caseating matter in its centre. Yet it is not an uncommon experience, and I hold that it is in the use of food of such glandular organs as the kidneys and liver that more danger lies than in the use even of flesh. Certainly thorough cooking may destroy the deleterious properties of the tuberculous material, but can this always be ensured?

The danger arising from the ingestion of milk from tuberculous animals has been often alluded to, yet no legislative measures are taken to provide against such danger. As inspectors we have a certain power in our hands by which we can protect the public, viz., by taking advantage of the clause of the Dairies Act which deals with milk from diseased animals; but even here great circumspection is required, and unless periodical visitations are made to byres—as is the case with those under my own charge in Edinburgh—by competent inspectors, the probable existence of Tuberculosis and consequent contamination of the milk supply cannot be brought to light; and you, gentlemen, know as well as I do the great difficulty sometimes experienced in correctly diagnosing tubercular disease. I repeat the statement made more than once, that the Legislature should empower local authorities to slaughter all animals reasonably suspected of being the subject

of Tuberculosis (especially when the mammary gland is affected), and to give compensation when the autopsy does not support the diagnosis. Moreover, the Legislature should include the disease amongst the contagious maladies, and insist upon regular and competent inspection of dairies and farms. Until this is done I see no prospect of the evil abating.

I have now, Mr. President and gentlemen, to draw your attention to another disease of a specific character, which of late years has increased in a marvellous manner. Some seventeen years ago I became acquainted, while resident near Liverpool, with a disease in poultry which, from it peculiarities, I looked upon as of a diphtheritic character, and subsequently, in my lectures, I designated it *diphtheritic aphtha.* A few years after this first acquaintance I met with the disease in Edinburgh amongst pigeons as well as poultry, and attributed its prevalence to bad hygienic conditions to in-and-in and to too fine breeding, especially as I found it most frequently amongst well-bred birds and in particular families. Up to within a few years ago I had only met with the disease as it presents itself around the external outlets of the different organs about the head, viz., the pharynx, larynx, fauces posterior nares, nostrils, buccal cavity, and occasionally about the conjunctivæ and the external auditory meatus ; but of late years I have become intimately acquainted with it as affecting the internal organs and even the connective tissue of the breast, of the abdomen, the mesentery, and the muscles, and in some instances the connective tissue of the foot and of the wattles in the cock ; and it is a curious fact that I have only seen its localisation in the latter situations in male birds of the Brahma Pootra breed.

This disease is, as you are probably aware, now known as "Gregarinosis," or "Psorospermiosis," owing to the fact that psorospermic organisms are found in connection with the local lesions it induces. By many investigators it is regarded as Tuberculosis, and while in some of its aspects it presents a striking resemblance to that disease, in others it partakes of totally different characters. I have never yet seen in Tuberculosis a product bearing any resemblance to the remarkable bodies found in the connective tissue of the muscles in this disease, neither have I seen any lesions in the wattles or feet in Tuberculosis. Moreover, in this affection we frequently find the lungs entirely replaced by a solid fibrinous exudate of a yellow colour, forming a cast of these organs around and between the divisions of the bronchii and in the intestines ; and even in the abdominal cavity we find similar exudates intermixed with layers or masses of blood coagulum in various conditions of change, sometimes forming a large cyst, the interior of which is filled with a turbid fluid. In the liver, too, the nodules are embedded, as it were, in the tissue ; can be enucleated with the greatest ease, and their structure is stratified.

That the disease is contagious there can, I think, be no reasonable doubt ; at least I have had ample proof of the fact, and, what is more striking, I am acquainted with one case in which a lady purchased a sitting of Brahma Pootra eggs from an infected walk, and the disease made its appearance in the chickens at a very early period of their existence, while other chickens of a different breed showed no symptoms of it, neither had it ever been seen in the poultry yard before. The malady can be readily produced by inoculation, but fortunately, according to Mégnin, the flesh of diseased fowls can be eaten with impunity by human beings ; and Trasbot, of Alfort, has stated that the diphtheritic membranes were placed by a pupil of his—M. Faiès—in his own throat without any evil results.

The exact histological characters of this disease are not yet satisfactorily settled; while some of the continental pathologists look upon it as totally distinct from tubercle, there are others among them who regard it as essentially tuberculous in its nature.

The microscopical characters of specimens prepared and mounted by Mr. A. Grey, jun., at my request, differ very materially from those of tubercle; and I have much pleasure in submitting for your examination two slides, with specimens illustrative of the histological characters of the two affections.

The dissemination of the nodules internally is certainly similar to that of ordinary tubercle, and, as in that disease, death is largely produced by anæmia (the wattles becoming quite blanched) and exhaustion, the latter being frequently produced by profuse diarrhœa; but in other respects the two diseases differ widely, though one is undoubtedly quite as specific in its nature as the other. I may, while alluding to gregarinosis, refer to an interesting circumstance to which my attention was incidentally directed a few days ago by Mr. Macfarlane, Lecturer on Botany at the College, viz., that the earth-worm is peculiarly liable to gregarinosis, and the organisms multiply in its interior with marvellous rapidity. It is highly probable that this is one source, at least, of the affection.

There is yet another disease of vast importance to the community, to which I will especially allude in this hurriedly written paper, viz., Black Quarter in calves and lambs.

As it is the fashion now to attribute the origin of every destructive malady to a bacterium, so with this affection, which in its nature is essentially a blood degradation or depravation, and can as readily be produced as it can be checked by purely dietetic and surgical means. I need not detail to you the causes and characters of this well-known septicæmia. You must all be familiar with the fact that it is usually—I may say nearly always—seen when animals are placed on highly nutritious and forcing food, especially if they have been previously subjected to the effects of semi-starvation; that it always selects those animals which are thriving in the greatest degree as its victims; that it is seen only in young animals, and locally is marked by stagnation, extravasation, death, and decomposition of the blood.

It has been sought to identify this disease with Anthrax, and I suppose you will all have observed an article in the VETERINARY JOURNAL for last month in which an endeavour is made to show that it occurs in old as well as young animals when brought into infected from healthy districts. Personally, I think there is a wide difference between Black Quarter and Anthrax; and in nothing is the difference so marked as in the fact that in the former the lesions are more localised, and the flesh of animals that have suffered from it is quite innocuous. More than this, I have never seen it in any but young animals, the oldest (in the practice of Mr. B. Kettle many years ago) being two years of age, although I have seen adult cattle of all breeds and classes brought from districts where the disease was unknown, and mixed with the infected stock; neither do we see it spread indiscriminately to other animals of a different species. But the most remarkable thing in reference to the disease, assuming (as stated by Toussaint and others) that it is caused by a specific organism, is that it can be so effectually and promptly prevented by a simple surgical operation, *i.e.* by the introduction of a seton into the dewlap. Surely if it were due to a bacterium, such a procedure could scarcely operate so effectually in arresting its spread, or if it did, it could only act by producing such a powerfully alterative effect on the blood, through the nervous system, as to render it incapable of supporting such organisms—an hypothesis scarcely of a reasonable character.

Not only will setoning arrest the spread of the disease when it has once made its appearance, but it will act as a most effectual preventative of it; and so well known is this fact, that in some districts the practice of setoning young cattle has become universal.

You may ask me how I explain the action of a seton here. I confess it is not easy to offer a rational explanation. If, as I contend it is, the disease is simply one of blood depravation, the operation of setoning can only act in the first place by altering the nutrition of the vital fluid through the nervous system (for you must remember that the preventive action of setoning is sometimes magical in point of time); and in the second place, by setting up a drain (the discharge of pus), which tends to restore the equilibrium of the hæmic constituents, or we may accept the only other alternative, and fall back upon the hypothesis, that the nutrition of the blood is so altered by the action of the seton, as to render it incapable of supporting organic germs.

It is not my intention to allude to Anthrax further than to call your attention to a circumstance which recently came under my notice during the course of an investigation into an outbreak of Anthrax amongst a flock of breeding ewes. In this case it was noticed that, with one exception, the animals which succumbed had not lambed; and on *post-mortem examination* I found that, although the lambs were perfectly developed and well nourished, a dirty sero-sanguineous fluid had been thrown out between the chorion and the uterus; the cotyledons were disintegrated, and the internal organs of the lambs (especially the more vascular organs) were the seat of marked Anthrax lesions, and there was serous effusion into the serous cavities.

Whatever phase the germ theory may assume, the fact will always remain, that no germ life can thrive where the soil is not suitable to it; and it must ever be our aim so to change the soil as to render it unsuitable for such a purpose. Whether we attain our object by vaccination, inoculation, setoning, bleeding, the administration of catalytic medicines, by regimen, or any other means, is quite immaterial, this I say must be our aim, and that we have such a power in our hands must be manifest to all who have made veterinary sanitary science an important part of their life's work. I am quite satisfied that even the most virulent of our zymotic diseases can be effectually dealt with by the adoption of strict sanitary and prophylactic measures; and I confess that I do not understand why in some districts and towns such maladies as Rabies, Glanders, etc., are allowed to run riot amongst the brute creation.

(To be continued.)

SCOTTISH METROPOLITAN VETERINARY MEDICAL ASSOCIATION.

A QUARTERLY meeting of the Association was held in the London Hotel, Edinburgh, May 10th, the President, C. Cunningham, Esq., in the chair. There was a good attendance, the following gentlemen and others being present:—Finlay Dun, Esq., M.R.C.V.S., London; Captain Hayes; Professors Walley and Lewis; Messrs. W. Anderson, jun.; McQueen, Glasgow; Hutton, Kelso; Cameron, Berwick-on-Tweed; Fingzies, Lochgelly; Fairbairn, Dunse; Aitken, jun., Dalkeith; W. O. Williams; Alexander Gray, jun.; E. Rutherford; Aitken, jun., Edinburgh; Black, Howgate; Young, East Calder; the Secretary, and representatives of the Press.

The minutes of last meeting being read and confirmed, the SECRETARY, in referring again to the proposed testimonial to Mr. Fleming, informed the members that he had received a communication from Mr. Martin, Secretary of the Southern Counties of England Veterinary Medical Association, to the effect that Mr. Fleming had consented to receive a testimonial, providing such did not take a pecuniary form. As the question of supporting

the proposition had not been definitely disposed of at last meeting, it was now open for reconsideration.

Professor WALLEY moved, "That it be intimated to Mr. Martin that the Association cordially approve of the proposal to present Mr. Fleming with a fitting testimonial of the value which the profession at large entertain of his labour in connection with the obtaining of the Veterinary Surgeons' Act, 1881, and that we would be pleased to co-operate with the committee formed."

This was seconded by the SECRETARY, who informed the meeting that he had already been invited and had consented to act on the committee, and that in doing so he would keep the members informed of what they should know.

A letter from the Secretary of the West of Scotland Veterinary Medical Society was read, asking the support of this Society to the following proposal, which had obtained the sanction of the members present at their meeting held in Glasgow, January 25th, 1882:—"That we memorialize the Council of the Royal College of Veterinary Surgeons to appoint a veterinary surgeon in lieu of a medical man as examiner at the Materia Medica table." It was unanimously agreed, "That we join the West of Scotland Society in so memorializing the Council."

Several members expressed the opinion that this subject was especially one which should be examined on by a veterinary surgeon, and that there was no lack of gentlemen whose attainments well qualified them for the position. If acceded to by the Council, it was thought that the change was one which would commend itself to the profession, and that the examination by a board so constituted would, if anything, be of higher value.

A letter from Mr. Banham, Honorary Secretary to the British National Veterinary Congress, asking the opinion of the Society as to the advisability of the Congress becoming an established institution in the shape of a British National Association, was next submitted to the members for their consideration, as was also a copy of the scheme (subject to alteration in committee) upon which it was proposed to base the purpose of the proposed association.

In laying these before the meeting, the SECRETARY took occasion to say that for some time back he had been revolving a plan in his mind whereby, if carried out, the three Scottish veterinary societies would be more closely drawn together for all purposes. He had taken counsel with Mr. Cunningham, the President, and that gentleman concurring, had placed himself in communication with the President and some of the members of the West of Scotland Society regarding this plan, which was that the members of the three societies meet together once a year—something after this way: ABC being the three societies, B and C would visit A the first year; A and B would visit C the following year; and in the third year C and A would visit B. A favourable opportunity of doing so presents itself in the occurrence of the annual meeting and dinner, which, under this plan, and without interfering with the four quarterly meetings, would be held triennially in rotation, in the place of the meeting of each society. He was glad to say that the West of Scotland Society had entered most heartily into the project; and although he had not yet the decision of the Scottish Central Society, he was in hopes that the subject, being laid before its members at their next meeting, might receive their support also.

Professor WALLEY did not know if a better proposal had ever been brought before the Society, and highly approving of its object, begged to propose that a small committee be formed to co-operate with the other two societies in completing the arrangement; the same committee to act, if

necessary, with the Secretary in the matter of the proposed British National Veterinary Association.

Professor LEWIS seconded the motion, which was agreed to without dissent. The following, being proposed on the committee, were elected :— The President, C. Cunningham, Esq., Professors Walley and Lewis, and the Secretary, R. Rutherford.

The following gentlemen were elected members of the Association :— Messrs. W. O. Williams, New Veterinary College ; Lindsay, Alloa ; Aitken, Jun., Dalkeith ; Fingzies, Lochgelly ; and Cameron, Berwick-on-Tweed.

The following gentlemen were nominated for membership :—Messrs. Henry Thompson, Aspatria, Cumberland ; Hutton, Kelso; and T. D. Connochie, Jun., Selkirk.

The discussion on Captain Hayes' paper on the feeding of horses, postponed from last meeting, was resumed by Professor WALLEY, who, at considerable length, favourably reviewed the paper. The Professor had, however, reason to condemn the use of Indian corn as a food. His remarks were replied to by Captain HAYES, followed by some from Mr. FINLAY DUN, who spoke rather in favour of the corn, pointing out how in some of the States of the American Union—from a visit to which he had just returned—little else in the shape of grain was used as food. He also took occasion to animadvert on the practice of those people in Ireland who collect young horses for this market, and confine them in darkened stables, blowing them out on soft, boiled starchy food, so as to give them a forward, good-conditioned appearance ; and he was of opinion that such horses were rendered by this treatment peculiarly prone to attacks of Catarrhal Fever, Pneumonia, etc., which very often proved intractable.

Mr. W. M. ANDERSON, Jun., of Glasgow, read a paper on the late Epizootic Fever among horses, describing at length the symptoms of the disease as it had occurred in his practice, and detailing the treatment under the different forms in which it appears. His practice had been most successful, inasmuch as out of about 900 cases he had only had one death.

A very animated discussion followed the reading of Mr. Anderson's paper, which it was agreed upon should be forwarded to the professional journals for publication.

Professor WALLEY subsequently exhibited a tumour, which had grown from the under surface of the parietal bone of a horse, inducing the usual symptoms of pressure upon the brain, and for which the animal was destroyed.

The meeting then terminated with votes of thanks to Captain Hayes, Mr. Anderson, and Professor Walley, for their contributions, and to the Chairman for presiding.

R. RUTHERFORD, M.R.C.V.S., *Hon. Secretary.*

The following is Mr. Anderson's paper :—

Mr. Chairman and Gentlemen,—I feel, in occupying the position of essayist to-day, quite inadequate for the duty I have undertaken. When I accepted your invitation, I did so fully knowing my inability to introduce to you anything of novel importance. Enthusiasm for the progress of this and kindred associations, along with the wish that the different associations could be brought into closer relationship with each other, alone prompted me to undertake a duty which I have a pleasure in fulfilling; but I fear that my utmost endeavours to do it justice will fall far short of what I consider requisite for the furtherance of the cause. I hope, however, gentlemen, that whatever my paper lacks in talent and interest, you will fill up the deficiency by a spirited discussion, exchanging your opinions and experiences freely, because I consider however meagre our observations may be, still it has become necessary in this age of advancement for each of us to subscribe our mite.

The following remarks upon the late epizoötic amongst horses will, I trust, be opportune. Seeing it has been so recently in our midst, the gleanings of our practical observations may assist us in determining its true pathological nature.

Veterinary nomenclature has not yet decided what name is best suited for this disease. Each country has its favourite appellations. On the Continent it is designated "Horse Typhus," "Gastro-enteritis," "Pulmonal Typhus," "Horse Sickness," etc. The Americans call it "American Horse Disease," "Pink Eye," etc. It is known in this country as "Horse Distemper," "Influenza," "Epizoötica," etc. There are so many forms of this disease that it is almost impossible to give it a name which would convey to the mind an idea of its nature: the nearest approach I can make is "Hepatic Influenza-epizoötica." From my experience of the disease, I conclude that the liver is always more or less involved. The malady, according to several writers, appears to have been observed and commented upon by the veterinarians of the 17th century, and since that time it has periodically visited us, each time extending itself far and wide in both hot and cold countries. It is, in my opinion, undoubtedly a specific febrile disease, being infectious and contagious, and capable of arising spontaneously in any country where there has been a continuance of unseasonable weather. (There is no particular season of the year more favourable than another for its development. It appears in spring, summer, autumn, and winter, with equal virulence.) During the recent outbreak which raged in Glasgow and the west of Scotland all last winter I observed that the number of infected animals was in a great measure regulated by the weather. In close, wet weather it spread more rapidly than in cold weather; but on a clear, frosty day (of which days we had very few last winter) there would be no new cases, and even the animals labouring under the disease apparently got a certain amount of relief. The disease presents itself in several forms, which may be classified under four heads, viz., Catarrhal, Œdematous, Rheumatic, and Irregular. In all four forms the primary symptoms are alike, namely, dulness and languidness, then loss of appetite. At this stage we can, as a rule, determine what form the disease will assume. If Catarrhal, the animal has a slight cough, tumefaction of the submaxillary glands, with watery discharge from the nostrils, and the usual febrile symptoms, namely, increased temperature and rapid pulse; the conjunctiva has a yellowish appearance, and all the mucous membranes visible are injected. The pulse is seldom over eighty, more frequently ranging from fifty-five to sixty-five, the temperature varying from 101°—105° Fahr.

I consider the disease takes four days, as a rule, to mature, at which stage the foregoing symptoms are increased. The previously injected mucous membranes become yellow; the animal gets very weak, in fact, staggers greatly; rapid emaciation sets in, still there is no inclination to feed, and it seldom lies. This state of matters generally continues for two or three days before convalesence sets in. The first convalescent symptoms are the eye brightening up and the animal showing an inclination to feed. It is astonishing how soon the patient recovers after convalescence sets in: the symptoms disappear as rapidly as they appeared, and in a few days the animal is apparently in good health. The fatal terminations of this form of the disease are generally due to pleurisy or gangrene of the lungs. When the disease assumes the Œdematous form, after the primary symptoms the eyelids swell, then the legs—more especially the hind ones—tumefy considerably, and the sheath, as a rule, is greatly swollen. There are the usual febrile symptoms, with quick, weak pulse, and urine high-coloured, and often, but scantily, passed.

The mucous membrane is infiltrated with a yellow fluid; there is great

thirst, but no inclination to feed; rapid emaciation sets in, and in a number of cases diarrhœa is present. This form of the disease also takes about four days to mature. The eyelids are then completely closed, the pulse generally ranging from eighty to one hundred, the temperature from 102 to 105°. As a rule, several days elapse before convalescence sets in, and recovery is much slower than in the preceding form. Should death take place, it is generally through sheer prostration.

In the Rheumatic form, which I must say is the most peculiar, we have loss of appetite and the mucous membrane injected; there is great lameness in one or more limbs, oftenest in the off fore, without any apparent cause. The animal has an anxious look, as if suffering acute pain. The febrile symptoms are present, accompanied by an intermittent pulse; the lameness sometimes changes from one limb to the other; the back is in some cases "roached," and when the animal is moved it generally inclines to one side or the other. There is a difficulty in micturition, and the urine is highly coloured. This form takes about ten days to run its course; and often the lameness continues for several days after the other symptoms have disappeared.

The fourth form, which I have called "Irregular," includes all the complicated forms of the disease. The usual symptoms of fever and jaundice are present, but in some cases we have diuresis accompanying them, in others partial paralysis, again in others colicky pains, all of which require different treatment, according to their respective symptoms. I cannot say much regarding the *post-mortem* appearances of this disease, as I had only one opportunity of witnessing an examination of a horse which was said to have died from the disease, and from all appearances emaciation was the cause of death. However, the mucous membrane all along the intestinal track was infiltrated with a yellow fluid, and the liver was enlarged. My treatment for this disease of course varied according to the symptoms present; but in every case in which fever existed the first thing I did was to rub the whole surface of the body with acetic acid and water. If the animal had a fine skin I mixed one part of the acid with two of water, but with draught or coarse-skinned animals I used equal parts. After rubbing the body and legs with this mixture, I ordered the animal to be well wrapped up in several blankets, from the head backwards, and the limbs to be bandaged; I also put half an ounce of nitrate of potash and fifteen minims of Fleming's tincture of aconite in half a pailful of cold water, and allowed the animal to drink it as he pleased. After the blankets had been on an hour I had them removed, and usually found the animal perspiring profusely. Having had him rubbed dry, and applied soap liniment to his throat and region of the liver, dry blankets and bandages were put on, and he was removed to a comfortable box or stall. The only food I allowed him was a few sliced carrots, mixed with some wet bran, and a handful of oats three or four times a day. In the Catarrhal form I generally applied the liniment to the throat twice a day, and in a few cases had to blister the throat with cantharides. I kept water with aconite and potash constantly before him, allowing him three to five doses in the twenty-four hours. However, after the first administration I limited the dose to two drms. nit. potass., and ten mims. aconite. If the fever continued, without showing signs of abatement, twenty-four hours after my first visit I again applied the acetic acid and water.

When I feared the disease extending to the chest I applied a counter-irritant, and gave sulph. ether two ounces, and camphor two drms., twice daily. In the œdematous form, besides applying the acetic acid and water to the body, and the liniment to the throat and region of the liver, I ordered his legs to be rubbed with mustard and water, the strength being one quarter

pound of mustard to a gallon of water, and then bandaged. I also gave mineral tonics in the form of balls.

In the rheumatic form I gave two drms. salicylic acid twice daily, and applied acetic acid to the affected limb or limbs. In the irregular form my treatment of course varied. When diuresis was present I substituted carbonate of soda for nitrate of potash, and gave plenty of mashed linseed, also occasionally giving two drms. iodide of potassium. When partial paralysis presented itse'f I gave sulph. quinine and nux vomica. My opinion regarding the treatment of this disease is that good nursing and comfort have more to do with the recovery of the patient than all the medicine we may prescribe. Although the late outbreak has not resulted in many fatal cases, still I am afraid we do not know the worst of it yet, as I have always observed in previous outbreaks serious sequels occurring. Horses which have had the disease in anything like an aggravated form are, in my opinion, ever afterwards prone to liver disease. After the outbreaks which occurred in Glasgow in the years 1866 and 1873, we had a number of severe cases of Colic, not a few of them ending fatally. On making *post-mortem* examinations, I invariably found the liver to be the seat of the ailment, which I attributed to functional changes occasioned by the disease. This disease is seemingly more fatal in some countries than others. In America the mortality is, from all reports, large; and as I observe in the VETERINARY JOURNAL, an account of a disease named "Surra," by Dr. Evans, as prevailing in India, corresponds to the disease which we are now considering, with this exception that it is much more fatal; in fact, few cases, according to Dr. Evans's report, recover.

He attributes the disease to filariæ, but whether Hepatic Influenza-epizootica is due in this country to this cause I have not yet fully determined.

There is little of special importance in this brief account of the disease; but one thing I would draw your attention to, and that is the extraordinary amount of relief afforded to the fevered patient by getting him to perspire freely, and also limiting his diet. The average mortality in this country should not exceed one per cent., providing the animal is put off work immediately after the first symptoms appear. You will observe I have briefly summarized my opinion regarding this disease, without promulgating any theory as to its pathological nature, but have simply laid before you my practical observations, which I trust may assist you in determining the true nature of the disease, which duty devolves upon you.

LIVERPOOL VETERINARY MEDICAL ASSOCIATION.

THE seventy-first quarterly meeting of this Association was held at the Medical Institute, Hope Street, on Friday evening, May 12th, 1882, the President (William Leather, Esq.) in the chair. There were present—Messrs. Elam, Reynolds, Donald, Bain, Morris, and Morgan, Liverpool; Greaves, Faulkner, Wolstenholme, P. Taylor, Hopkin, and Locke, Manchester; Edwards and Storrar, Chester; Whittle, Worsley; Woods, Wigan; Wilson, Nantwich; Thelan and Noar (visitors), Manchester; and the Secretary. Letters and telegrams regretting their inability to attend were received from Professor Walley, Messrs. Fleming, Blakeway, Santy, Crawford, Barnes, Schofield, Swithinbank, Welsby, Kenny, W. Lewis, M. J. Roberts, Barron, A. Lawson, and Roughsedge. Representatives of the Royal Society for the Prevention of Cruelty to Animals were present from Liverpool, Manchester, and Cheshire.

The minutes of the previous meeting were read and confirmed.

The SECRETARY read a letter from Mr. Banham, stating, in reply to the question asked as to the action that would be taken by the British National

Veterinary Medical Association in regard to those gentlemen who hold the certificate of the Highland and Agricultural Society of Scotland, that he could not give any answer, but it was a question for the Committee (when formed) to take into consideration.

Mr. GREAVES then proposed the President as a member of the Committee of the British National Veterinary Association ; seconded by Mr. WOODS, and carried.

Mr. WHITTLE proposed Mr. J. K. Pilkington, Woolton, as a member of the Association ; seconded by Mr. ELAM, and carried.

The SECRETARY nominated Mr. Joseph Donald as a member of this Association.

Mr. R. C. EDWARDS then read an interesting communication on "A Peculiar Affection of the Spinal Cord, exhibited in the form of Fits, supposed to be the result of Docking." A lively discussion followed, the majority of the members expressing the opinion that the fits were not due to the docking, but to derangement of the digestive organs.

Mr. GREAVES then read the following essay on "Cruelty to Animals and the Veterinary Surgeon's Duty."

This subject, I have often thought, is one that would form a very useful and interesting topic for the consideration of a veterinary medical association. For half a century I have done whatever I could to suppress cruelty to animals, and give them all the pleasure and comfort compatible with their station.

During my experience the improved feeling of even careless persons towards the lower animals, and the more enlightened sympathy which is felt towards them, are largely due to a better knowledge of their nature, and of the common tie of life which binds us to them. I am quite convinced that the idea of kindness to animals is becoming more generally diffused in society, and hope to see it more universally inculcated in children, especially in Board and other schools. This brings to mind an incident in my life which has ever since been a source of pleasure. The idea seems so beautiful that I must ask you to excuse me if I relate it here. It was as follows :—One day, twenty-five or thirty years ago, as I was visiting the Royal Mews connected with Buckingham Palace, my attention was attracted to several pretty little cats, one in each stall, lying peacefully amongst the straw, one fast asleep upon the back of one of the little ponies. I naturally inquired the reason of it, and was informed that it was the special desire of the Queen that the royal children should have a kitten brought up with the pony belonging to each child. It was carefully inculcated into each child that the kitten and the pony were under his or her (as the case might be) special care and control ; that the children were very often playing with these kittens and feeding them, caressing and feeding the ponies, and that whenever the Court went either to Osborne, Windsor, or Balmoral these kittens and ponies invariably accompanied them. This was ordered by the Queen, with the simple and pure idea of teaching and training their minds in lessons in kindness to animals.

The other day, whilst reading the paper upon this subject which was read and discussed in the late Veterinary Congress, showing the inhuman and diabolical practices in the Continental schools, and the three most excellent papers (one of them by our worthy President, Mr. George Fleming) on the subject in the March number of the *Nineteenth Century*, led me to put down my views and read them here.

Cruelty to animals has been made a penal offence by our legislature. Thomas Barnwell Martin brought in a bill which specified, "That if any person shall cruelly beat and ill-treat, overdrive, abuse, or torture, or cause or procure to be cruelly ill-treated, overdriven, abused, or tortured, any animal, every such offender shall, for every such offence, forfeit and pay a penalty not exceeding five pounds." This act was passed, and is now the law.

I define cruelty to be *the infliction of unnecessary pain*, and that the perpetration of it is an offspring of ignorance; it is uncontrovertible evidence of a debased, brutalized, and perverted mind, which ought to be restrained. No cruel man or woman can be a Christian. This view of the subject is deserving the hearty sympathy of all Christian people. Even our Queen has expressed her most anxious desire that every endeavour should be made to prevent cruelty to animals; our Scriptures also teach us that "the righteous man regardeth the life of his beast, but the tender mercies of the wicked are cruel." There are societies formed for the express purpose of preventing cruelty as far as possible, and to punish where it cannot prevent. Every man possessing feelings of humanity should assist and support them. These societies are countenanced and supported by many most worthy people, who contribute generously to their support; these people are a blessing to the community in which they live, and are worthy recipients of the benefits of that great Being in whose eyes wanton cruelty is most detestable. The various animals around us are given for our use, and we are bound to protect them from needless suffering. From this view my subject appeals to the moral sense and the noble feelings of humanity. I respectfully submit that it is the peculiar province of the veterinary surgeon to assist and protect all domestic animals. It is our daily calling, our special duty, to alleviate their sufferings; it naturally follows that we must sympathize with and love them. From the unlimited opportunities and the experience we have of understanding the nature, constitution, and dispositions of all domestic animals, we must know them better than any other men. As Mr. Stevenson says, "There is no man can do so much towards preventing cruelty to animals as the veterinary surgeon. We are supposed to know the peculiarities of our patients and their feelings, and we ought to go about them gently and carefully, and speaking quietly, treating them kindly, so as to teach a lesson to those who have charge of them." These words are worthy to be written in letters of gold.

I contend that possessing this knowledge, standing on this vantage ground, it is the veterinary surgeon's bounden duty to protect them, alleviate their suffering, and prevent cruelty in any form as far as lies in his power. I say it is not only his province, but it is his duty. All his teaching, all his knowledge, his daily life compel him to sympathize and be anxious to step in and protect them. No grander object can be conceived than humanity pleading the cause of that noble animal the horse: we are justifying the highest purposes of our intelligence.

> "A man of kindness to his beast is kind,
> But brutal actions show a brutal mind.
> Remember He who made thee also made the brute,
> Who gave thee speech and reason formed him mute.
> He can't complain, but God's omniscient eye
> Beholds thy cruelty; He hears his cry.
> He was designed thy servant and thy drudge,
> But know that his Creator is thy Judge."

There is nothing that I am more convinced of than this, that kindness begets kindness. See the evident pleasure that is felt by the horse, the dog, the cat, the ass, when he hears the voice or the footsteps of his master: his heart dances for joy, so to speak. To a man with feelings of humanity this pleasure is mutual. A chord of sympathy exists between them. But this is not all. These animals do their work with a willingness and assiduity which is most gratifying to see. On the other hand, we always see a bad-tempered man make a bad-tempered horse. Continuance of ill-treatment makes him vicious; the animal is in continual fear; an enmity is set up betwixt them; the servant hates his master, does his work with ill-will, and, even with the

assistance of the lash, you fail to get the same amount of work out of him as the other renders freely.

Now there are instances, and I say it is wickedness and criminal in any man possessing this knowledge to countenance or support in any degree, or in any way make excuses or palliate wanton cruelty—I have seen instances where a veterinary surgeon has lent himself to the cause of cruelty, and has exulted in having supported an unfeeling and cruel man. This can hardly fail to affix, however undeservedly, a stigma upon the whole of our profession.

At a meeting the other day in the Mayor's parlour in our Town Hall, our worthy Mayor uttered sentiments on this point that did honour to him as a man and as the first magistrate of this great city.

In the consideration of these cases of cruelty, there are two or three important points which should be carefully borne in mind. I assume that it is admitted on all hands that a good deal of cruelty is perpetrated in our midst, and it is right that some individual, or some body of men, should interest themselves in them, and should step in between the cruel man and his dumb, suffering beast, to relieve him of his suffering or to prevent further suffering. Now the variety of cases of cruelty which can be named are interminable, but I shall only bring before your notice some of the more prominent or frequent sort of cases that are interfered with; and in doing this I am anxious to lead your minds to some useful conclusions, and show in what way an observant veterinary surgeon can be of practical benefit to the poor suffering animal. I will simplify my subject as much as possible, and for that purpose will divide my cruelty cases into three categories :—

1. Cases of lameness.
2. Cases of overloading and overdriving poor, weak, and half-fed horses.
3. Cases of wounds and sores.

First, cruelty as a result of lameness. Now there are many degrees of lameness. The degree of lameness is, in nearly every case, commensurate with the degree of pain, and the degree of pain is exactly the degree of cruelty if compelled to move. On this particular point, it is no uncommon thing to find even veterinary surgeons to differ in opinion as to whether it amounts to cruelty or not. Both parties may be humane and merciful, but they differ as to what is cruelty and what is not. In every such case I should say it must be such a one that a man, uninfluenced and unbiassed by partisan feeling, and possessing the ordinary feelings of humanity, or, in other words, any sensible, fair-thinking, humane man, would not allow to work. If a horse in such a condition is found working, I say society is only performing a sacred duty in interfering to prevent the cruelty and punish the offender. If the cause of lameness is such as can be removed, it is the bounden duty of the veterinary surgeon to see to it. For instance, it may be a badly fitting shoe, too tight upon the heel, or pressing upon the sole. In such a case it can soon be remedied by having the shoe properly fitted. In all cases of Sandcrack, Stringhalt, Navicular Disease, Pumiced Sole, Anchylosis, etc., a line must be drawn where cruelty begins; and I think it is safe to lay it down as a rule that in every case in which the lameness is very slight the pain must be very slight, and, if the horse carries good condition, it is not cruelty for such a horse to do slow, moderate work. It would be better if he could work on soft roads or in fields. But if the lameness is considerable the pain must be considerable. If the horse is perspiring, and his breathing is inordinately accelerated in his work, a certain indication of pain, such a case is cruelty, and ought not to be allowed to work, especially upon paved streets; but in every such case the magistrate leaves the bench, and sees the horse himself, and forms his own opinion. It is often the case that our explanation is looked for, to enable them to fully understand the nature of the case, and give just judgment. In all cases of Bone Spavin—in every

such case the horse suffers pain every time the heel descends to the ground. This puts a strain upon the joint that is attended with pain. It is a very frequent case that a horse with a Bone Spavin will come back to the smithy the day after he is new-shod. The man will say, "My horse is going very badly since he was shod: I fear he is pricked," when it is simply referable to the new shoe having a higher toe on than the old shoe had, and there is consequently a greater degree of leverage to the hock joint. By taking off the shoe, knocking the toe of it lower, and raising the heels, it meets the case, and he will travel again as well as before. Then as regards contracted tendons, I have frequently observed that veterinary surgeons do not pay that attention to these cases that they should. I am now speaking of both veterinary surgeons who have no forge and those who have. I have seen such a horse leave a veterinary surgeon's forge new-shod with the ordinary common shoe, in which the heels of the shoe never came within two inches of the ground. He might just as well have been shod entirely without heels. Such heels in such a case are of neither use nor ornament. If a veterinary surgeon will only think for one moment, he will instantly see that, when the horse is drawing, every time the heels are forced to descend, fibres in the diseased tendon must be stretched, and this tension of contracted fibre is accompanied with considerable pain and suffering. Even when the horse is standing still the same thing is taking place more or less. See how anxious the horse is to find a hole in his stall to get his toe in it. No veterinary surgeon or shoeing-smith is justified in allowing such a horse to leave his forge until he has first had him walked out, and seen whether the heel or calkin of the shoe reaches the ground every time the foot comes to the ground. If it is too long or too short, the shoe should be taken off again and nicely adapted to the requirements of the case. This is what we always do at each of our forges to every horse with contracted tendons. We have numbers of such cases working constantly in the streets of Manchester. The pattens on the shoes are of various lengths (from 1 to 3 or 4 inches high), according as is required in each individual case. The officers of the society see them regularly in their work, they say. I see these horses start their loads on the lame leg: this is ample proof to me that it does not give the horse pain, and consequently is not cruelty. But mark the sequel. Whenever these horses happen to break the patten or heel off their shoe, and they find there is no longer a support under the heel for the contracted tendon, and that the heel must descend and the tendon must be stretched, they will stop at once, and you cannot drive them along, only on three legs. Now I say the veterinary surgeon who neglects to observe this and adopt it is certainly committing a dereliction of his duty not only to the owner of the horse, but also to the poor dumb beast. I have heard it said that this method will favour the progress of contraction; but no greater fallacy can be advanced. You cannot cause contraction if you try ever so much or ever so long.

Occasionally the owner or driver will deny that the horse is lame; they will set the officer at defiance: but in nearly every case when close pressed they will inculpate themselves; they will admit the horse is rather stiff, a little lame, but they did not know he was in pain, or that they were *intentionally* causing cruelty. I have known their ignorance persisted in where the degree of pain was as if a penknife point was stabbed into the joint every time the foot jars upon the stones!

Some people say this is a noble institution often abused by the ignorance or indiscretion of the inspectors; that they are in the habit of stopping a poor man's horse, while at the same time permitting a rich man's horse to continue his work without even a caution. Possibly this may have happened, but in my opinion these inspectors are sometimes very unjustly condemned. Do not be uncharitable towards them: if we occupied their places we could not please

all parties. I maintain the principle that cruelty is cruelty, whether inflicted by the rich or by the poor man. I would always show more leniency to the poor man than to the rich man, because the rich man is better educated, he knows better, and can afford to let his horse rest, and it is our duty to prevent it as far as possible in both stations. I always counsel the inspectors to caution drivers, and if no attention is paid to such counsel, then take them in hand. I do not go as far as to say the society should interfere only in extreme cases. Surely it does not require a high classical, scientific knowledge to decide what is cruelty. Common sense is required, and this is possessed by inspectors as well as veterinary surgeons.

I contend that these societies are not only noble in themselves in preventing cruelty: the very presence of the officers in the streets is a terror to evil-doers, and in this way they are in reality accessories to the veterinary surgeon's number of cases. Many men who would be working a lame horse, or a horse with sores on him, knowing that he would in all probability be stopped, and taken before the magistrate, and be fined, sees it to be his interest to take him to a veterinary surgeon, and get him put right as quickly as possible, so that he can get such horse to work again. Numbers of these cases would be kept working, and never be brought to our surgeries, only for the fear of the societies; therefore I say it is not only our sacred duty, but it is our interest also, to support and assist them. In saying this I do not mean that we must support the officers in every case, whether they are right or wrong. I freely admit that it has occasionally happened an overzealous officer has apprehended cases that he was not justified in doing. In all such cases it is the veterinary surgeon's duty to use his better knowledge respectfully but firmly, in guiding the inspector and assisting the magistrate to arrive at a fair and just conclusion. But do not let us condemn a system simply because of occasional accidents in the system.

Secondly, cases of cruelty from overloading and overdriving poor, weak, half-fed horses are frequent occurrences. When horses are under their work, too small for the duties they are called upon to perform, badly kept, and worked without mercy, probably very old, and when utterly unable to move their heavy loads, then the whip is brought into active service. Such cases I call double cruelty, and some humane man should step in and prevent it. If the horse is very stiff from incurable ailment, far worn, he is in all probability so slow in his work as to be utterly unable to do a day's work, and prevents the man from doing a full day's work or earning a proper day's wages. In such a case it is wisdom to destroy the horse. Such horses are often found in the possession of men in a state of poverty, men who have little or no sense of feeling or kindness to animals, men who think nothing of putting a poor horse to unnecessary pain and suffering. I have often met with these purely selfish and unfeeling men. They seem to think it no wrong to torture a poor dumb, helpless creature, so that they are enabled to earn a precarious living. They have said to me, "The animal is my own, surely I can do what I like with my own." I reply, "No, you cannot, whether it happens to be your wife or your horse." They seem to be actuated with the same sense of right and wrong as Legree had when he said to Uncle Tom, "Ain't I your master? Didn't I pay down twelve hundred dollars cash for all there is in yer cussed old black shell? Ain't yer mine now, body and soul?"

Third Class, cases of cruelty arising from wounds and sores. These are cases of frequent occurrence, and surely no man can be found who will for one moment contend that when the saddle or the collar is chafing on a raw sore for hours together, it does not occasion severe pains. These are often the result of bad-fitting collar or saddle, on a carcass of nothing but skin and bone. Now the man who would allow the poor horse to go out working day after day in such a state must be a man devoid of feeling, and

richly deserves punishing. I have met with men who have told me that donkeys have no feeling, and that horses are analogous to them in their nature; but an observant horseman, who has been long accustomed to horses, can feel, and is as thoroughly convinced as if the horse spoke and told him. Now the horse cannot tell a lie, and I would sooner believe him by the manner he shows his pain, than I would believe many a man on his oath. No one feels this so keenly, for no one perceives it so clearly, as the veterinary surgeon. He is not guided by emotions only, but by his judgment, and to him his suffering or dying patient appeals for aid and protection. We know what pain is ourselves. I remember when a boy being terribly troubled with boils on my thighs and on the calves of my legs. I could scarcely bear a breath of air to touch them, so highly sensitive and painful were they, much less the pressure of a stocking, or even a fine linen rag; but in the horse it is said, "Oh, it is only a little heat-lump or warble! it is nothing. Keep working him"! Again, I have known many instances of blacksmiths coming to work after a long rest, probably having been laid up from a long sickness: the friction of the hammer-shaft will cause the palm of their hand to become so exceedingly sore, the skin becomes worn through and blistered—it is sensitive in the highest degree; the pain is something terrible, it feels like grasping a piece of red-hot iron every time he lays hold of the hammer; however hard the man may be, he is obliged to give up for a time—it is impossible for him to continue. But the poor horse, in precisely the same condition, with sore shoulders or sore back, must keep at work, drawing heavy loads, until large patches of dead skin slough away. God forbid that any veterinary surgeon can be found who will stand up and say this is not cruelty! Do you tell me that the horse has not the same sense of pain that man has? I challenge you to the proof. Only see the fine-bred horse. If you only trail the end of your whip-lash as gently as you possibly can across his back, he feels it and responds to it with a bound. See a fly alight upon his skin: he instantaneously corrugates the skin, and tries to shake it off. Let a horse-fly fasten itself on his skin: see the frantic efforts he makes to dislodge it. These are convincing examples, though many others could be given, that it is a fact that his skin is as sensitive as ours is. It must be so. We know that his organization is as perfect, in every sense, as ours: the physiological and pathological structure of his heart is precisely the same; the organization of the brain and nervous system is precisely the same—I mean the cerebrum, cerebellum, the medulla oblongata and medulla spinalis, as well as the respiratory or sympathetic nerve, with its action and reflex action; the skin, too, with its network of nervous filaments and blood-vessels, is precisely the same as the human skin. Let us never forget that they are as fearfully and wonderfully made as man is.

> "The poor beetle that we tread upon,
> In corporal sufferance feels a pang as great
> As when a giant dies."

If the horse has an old-standing wen or blemish under the collar or under the saddle, or indeed anywhere else, if it is found that you can press it and slap it, and the horse does not flinch, it is quite natural to conclude that there is no tenderness, no pain, and consequently no cruelty to work him. When we are following our daily duties and performing all necessary operations, let us always be as careful, expeditious and merciful as possible; let us see to it and insist upon it with everyone we have to do with; let us check the infliction of pain on all sides, both in season and out of season; even in our ordinary treatment of our patient let us observe habits of moderation and mercy; let us eschew severity in every form. In the discussion in the late

Congress, Mr. Hurrell said, "I remember a mare that was blistered. The man who blistered her went to a chemist, and got him to mix him up a blister. In the course of three days she had inflammation of the kidneys, and she died two days afterwards." Again, Mr. Stevenson said, "I have seen well-bred horses suffer immense pain for days from blistering, when in all probability that blistering was not required. In fact it is quite possible that the blistering did a deal of harm, not only causing direct pain to the animal, but inflammation has set in that took three times as long to put right." Now I can fully endorse this view, and most earnestly condemn severity in the treatment of disease. I would ask every veterinary surgeon who has not already done so, to read Mr. G. Fleming's Prize Essay for 1866, the Proceedings of the National Congress on Cruelty, from page 96 to 111, also the three most excellent essays on vivisection in the *Nineteenth Century*, last March—one is from the pen of Sir W. W. Gull, one from George Fleming, and the other from T. Lauder Brunton—perhaps the best ever written in this or any other country. These essays throughout their entire extent breathe one continuous condemnation of cruelty; that is, the infliction of unnecessary pain. But genuine scientific investigation is another thing altogether. The welfare of all, from the highest to the lowest, is dependent at some time or another upon the knowledge which it brings. If to-day it inflicts temporary pain, it annihilates its causes and its necessity in the future. Nothing is so cruel as ignorance. There are delicate and sensitive natures whose prejudices in these matters ought to be respected, whose judgment is entirely subordinated to their feelings; but we are bound to look upon pathological investigations in a broad and generous light. By their use disease and mortality have been vastly diminished, and continued experiments in the same direction will cause further diminution. If mankind benefits, so also animals. The sum of the matter seems to be, that human life and relief of human misery are objects which justify the infliction of pain upon animals, *provided always that the suffering be no more than is necessary for the end in view.*

It is with the greatest possible satisfaction that I find the principals and teachers of each of our veterinary schools repudiate vivisection, as utterly unnecessary in the teaching of veterinary science.

Mr. ELAM said we must all agree that the paper did Mr. Greaves great credit. When he had to deal with an animal very slightly lame, and there was a doubt about it, and it belonged to a very poor man, he thought it more cruel to the man to stop its working than to work the animal at slow work.

Mr. P. TAYLOR thought we ought not to discuss the subject in the presence of the officers of the R.S.P.C.A.

The PRESIDENT and SECRETARY explained the reason why they were present.

Mr. STORRAR said it was highly necessary to form your own opinion when you see the animal. The lameness might be mechanical, from Anchylosis, there being no pain. When called in we should not take the owner's interests into consideration, but confine our opinion as to whether it was an act of cruelty to work it or not. Thought the practice of overloading was much too prevalent, and strong steps should be taken by the R.S.P.C.A. to secure a conviction and decide the point.

Mr. HOPKIN wished to know if the discussion was to be confined to the subject of the paper, or whether it was advisable to consider also the action taken by the officers of societies; upon which Mr. FAULKNER proposed that Mr. Greaves's paper on "Cruelty to Animals and the Veterinary Surgeon's Duty" be discussed in all its bearings, and extend to the duties of the various societies for the prevention of cruelty to animals; seconded by Mr. HOPKIN, and carried.

The discussion was continued by Messrs. Hopkin, Wolstenholme, Woods, Morris, and Wilson, and was of a controversial character, the main arguments being principally directed against the action taken by the societies' officers, the result being, that Mr. ELAM proposed that Mr. Motum be allowed to bring in a paper on the subject at the next meeting, to be read either by himself or a member; seconded by Mr. GREAVES, and carried.

A vote of thanks to Messrs. Edwards and Greaves, the President, and the Secretary terminated the meeting. J. W. P. MOORE, *Hon. Sec.*

ROYAL AGRICULTURAL SOCIETY.

AT the monthly Council meeting, held on June 7th, the Hon. W. EGERTON (Chairman of the Veterinary Committee) reported that the Committee had amended a circular, inviting veterinary surgeons to act in twelve country districts, and had instructed the secretary to send a letter in accordance with it to the veterinary surgeons nominated. The Committee recommended that a grant of £50 be made to the Brown Institution, to carry out the experiments mentioned in Dr. Burdon Sanderson's letter, as follows:—

"During the year that has elapsed since Dr. Greenfield resigned the superintendentship of the Brown Institution and, in consequence, discontinued the experimental inquiries in which he was engaged for this Society, investigations have been continued at the institution relating to the important subject of Anthrax or Splenic Fever, with special reference to the prevention and mitigation of the disease by the inoculation of 'cultivated virus.'

"It is probably known to the Committee that experiments relating to the same question, and leading to results similar to those communicated several years ago to this Society, first by Mr. Duguid and myself, and subsequently by Dr. Greenfield, have been recently made in France, chiefly by M. Pasteur, and have attracted a great deal of public attention in this country.

"Experiments recently made at the Brown Institution since the appointment of the present superintendent, Dr. Roy, have showed that the conditions which must be fulfilled in order that the brilliant discoveries of M. Pasteur may be of practical value, require much further investigation than they have yet received. The experiments I refer to have been necessarily made on small rodents.

"In order that the results may claim acceptance as definitive, it is necessary that they should be extended to larger animals, particularly ruminants.

"With this view I venture to ask you to be good enough to bring the matter under the consideration of the Committee, with a view to the recommendation to the Council of a grant of money for the purchase of a sufficient number of sheep for the testing, under Dr. Roy's direction, of the protective value of cultivated virus, which has been recently prepared at the Brown Institution, and of the pathological effects which follow its inoculation.

"I would suggest that the grant, if approved of, should be made either to the superintendent of the Brown Institution, Dr. Roy (under whose direction the experiments must be made), or to the Committee of the Brown Institution, as before. In any case, Dr. Roy would undertake to furnish a report for the *Journal* within a short time after the completion of the experiments."

The Committee had received a report from Professor Robertson in regard to the Foot-and-Mouth Disease experiments now being conducted by him, the publication of which is postponed pending further experiments on the same subject.

The report of the Committee was adopted.

Army Veterinary Department.

Gazette, June 9th.

Veterinary Surgeon Walter Henry Kemp to be Veterinary Surgeon, First Class. Dated 9th February, 1882.

Correspondence, etc.

A SUGGESTION.

SIR,—From the reports of the Veterinary Medical Associations which have appeared in your valuable Journal, there appears to be a general wish that some grateful acknowledgment should be manifested towards the worthy and respected President of the Royal College of Veterinary Surgeons, for the great exertions he has made towards the advancement of our noble profession.

It is impossible for me adequately to explain how his unceasing labours *have* been continually employed for the accomplishment of those results which we now acknowledge to be of the greatest advantage to our present and future prospects. There is, however, one point still remaining unfinished upon which our President has already devoted a large portion of his time and anxious thought, and which I know he is still desirous to see completed, viz., the creation of a "local habitation." It was for this purpose that he obtained an interview with Earl Spencer, accompanied by a large deputation, which may be truly said to have represented the principal scientific men of the day. Whatever results may yet follow the representations then made it is premature to discuss. But surely a further move by the profession itself would not now be out of place. It would support the exertions already adopted by the President, render them more likely of success, and form a fitting expression of our esteem and respect.

To carry out this object, I would suggest to the presidents and members of the different Veterinary Medical Associations that they organize various sub-committees, and canvass every veterinary surgeon resident within their respective districts, in order to obtain suitable funds to complete this good work. Surely, if we put our shoulders to the wheel, this desirable result may be accomplished. Then we can commemorate the joyful event by placing a marble bust of Mr. Fleming in the entrance hall of the future college, and thus express our grateful thanks to one whom it has been our privilege to honour and admire.

Yours faithfully,

Aldershot, *June 6th*, 1882.

THOS. WALTON MAYER, F.R.C.V.S.,
Late Professor of Vet. Medicine, Royal Agricultural College, Cirencester.

"CRUELTY TO ANIMALS."

SIR,—Observing in the *Veterinarian* for April, a letter on this all-important subject by Mr. C. Cresswell, M.R.C.V.S., of Nottingham, and feeling, as I do, the great benefit which is to be derived from an open discussion in your valuable journal of a topic of such vital interest to us as veterinary surgeons, I feel it incumbent upon me to make a few remarks, as I believe there is a wide field for expressing opinions which I know are varied and diverse; and eliciting comments at once various and important. I presume that most veterinary surgeons have been called upon by the Society or its officers to express an opinion as to cruelty or non-cruelty to horses, in cases where they themselves have felt incompetent to give an opinion of their own.

That there are different degrees of cruelty no one would, I think, attempt to deny; but when it becomes the duty of the veterinary surgeon (which it undoubtedly is) to define that degree, and be responsible for the acquittal or condemnation of probably a respectable, well-meaning man, then I say how great is that responsibility, and how extremely careful a man should be before expressing his opinion. If examination of a horse for soundness is important, how much more so is the examination of a horse as to its ability or inability to work, especially so when you have to substantiate your opinion in a public law court, and be open to public criticism, and perhaps censure. The difficulty with regard to a conscientious veterinary surgeon (of which I trust there are not a few) having probably to condemn, by his opinion, one of his best clients for an inhumane act, because he has been the indirect means of an animal being worked of which he unfortunately is the owner, is insurmountably great, not to say very unpleasant.

In the next place I ask, How many men are actually aware that they are committing an act of cruelty, or causing a poor dumb animal suffering, when their horse is lame and they continue working it? If there is such a diversity of opinions as to the existence or non-existence of pain in certain lamenesses, among professional men, how can it reasonably be expected that an untutored mind and an unprofessional eye can discern an act of cruelty in working a lame horse? I am not speaking of those cases where there is any margin or room for doubt—cases that are so flagrant and palpable to the ordinary observer as to be at once recognised as both cruel and inhumane; but, as I have stated, those cases where a veterinary surgeon comes to the conclusion, after fairly and conscientiously weighing the matter well, that it is an act of cruelty, when perhaps another veterinary surgeon would unreservedly say it is not; in other words, cases that admit of doubt. My experience with the Royal Society's officers has been somewhat large, and I cannot but say somewhat pleasant, as I have always found them courteous and obliging, and invariably willing to bow to my decision where they had previously formed an opinion of their own, and we happened to differ; also to give any benefit to a doubt that might arise. But in cases where proceedings are taken, and I have expressed it as cruelty, I certainly do object to the wording of the charge to the defendant, "That he stands charged that he on a certain date did wilfully and cruelly ill-treat a certain animal, to wit, a ——, by working the same in an unfit state." It is being charged with wilfully and cruelly ill-treating an animal that goes so much against the grain, and causes three-fourths of the defendants to plead "Not guilty." They knew their animal was lame; but to men fond of animals (aye! and I may say humane men, for I have met with such who have been charged for working lame horses, who would not give pain intentionally to any animal), I think it is especially hard to have a summons worded in the same manner as it would be in a case of revolting cruelty, viz., kicking, thrashing, or stabbing, I only mention this as a suggestion, thinking it requires remedying; for I am of opinion that the Royal Society should have some less expressive sentence in modified cases of cruelty.

Next, How can the disrepute in which a veterinary surgeon is naturally held, and the harm which it invariably does him, by appearing against his own clients, be done away with and remedied? This is a question worthy of consideration, for no one, I am sure, will deny that it does him an incalculable amount of damage. Could not neighbouring veterinary surgeons do each others' districts. It could not possibly matter to the Society, and I think, or rather I should trust, that in an enlightened age like our own, with our common profession coming so prominently to the front, that all petty jealousies and ill-feeling would be dispersed and etiquette studied in every respect.

Now we come to the great question, and of all others the most important, viz., What is cruelty, and what is not cruelty? I do not see why we should not have a compiled list of each; and the most expeditious way of obtaining the voice of the profession, is through the medium of our Veterinary Medical Association's discussion on the various ailments of horses, upon which the question, not of soundness or unsoundness, but of cruelty or non-cruelty, is likely to arise, and a professional man's opinion sought, would be of inestimable value to us all, as we should have a standpoint and a basis upon which to form our opinions, and thus avoid that flat and open contradictory evidence which is so often painfully apparent, and which so tends to bring our profession into ridicule and our science and ourselves into disgrace.

Among the principal maladies from a point of cruelty or non-cruelty light, are Contracted Feet, Side-Bones, Ring-Bones, Chronic Laminitis, Simple Corn, Sand-Crack, etc.; wounds deep or superficial in the vicinity of joints, abrasions either in contact or not with the harness, cases of bad Roaring and Broken Wind, respecting all of which I have no doubt veterinary surgeons differ in degree as to opinion. Then again, as to docking, which I myself look upon (although I believe cruel) as a necessary evil; also cropping dogs' ears and tails, and punching the ears of cattle and sheep for the purpose of identification. I attended at the police-court of a neighbouring city, about a month ago, for the Society, in a case of mutilation of ears of cattle; there being eight steers and two heifers, having each of them about two inches cut off the top of one ear and a punch three-quarters of an inch in diameter in the other. Professor Pritchard likewise appeared for prosecution. Would any professional man advocate such a plan for identification, especially so when there are other means that can be had recourse to for that object? Yet (although there was ultimately a heavy conviction) two of the magistrates showed unmistakable signs of biassed minds directly the case came on for hearing, making gesticulations and audible observations, which, to say the least, was ungentlemanly and unmagisterial; they evidently being of opinion that because it had been the custom of the country, therefore that custom should be allowed to exist unmolested. But the Bench ultimately ruled differently. I will not take up more of your valuable space. I trust this will provoke discussion in your Journal, which will be beneficial to the profession at large, and place us in a better position in the witness-box and in the eyes of the public generally.

Yours, etc.,

Margate, Kent. E. LYNE DIXSON, M.R.C.V.S.

NEW REMEDIES.

SIR,—My letter on "New Remedies" has evidently excited Mr. Maynard's indignation. I hope he does not feel it more keenly being from a junior.

If I have in any way wounded his feelings I am sorry, but I fail to see anything in my letter which I should feel justified in cancelling. I am rather glad than otherwise that I penned the letter, as it has afforded Mr. Maynard an opportunity of defining his position, and giving a positive denial to the supposition that his article was intended as a "puff" for the nostrum. I candidly admit I thought it was an extol for some particular preparation, and I can assure him I was far from alone in this belief; and I submit that any one who unbiassedly read the article, could scarcely fail to be impressed with the idea that it was intended as an advertisement. The language in which the whole article is couched is highly suggestive; so also is the fact that Messrs. Mackey's representative, some weeks prior to the appearance of the article in question, was pushing the preparation very hard: he said it was undoubtedly destined to be the "tonic of the future," and that a leading

article on it would appear in the April issue of the Journal—facts which go to show that the firm were quite conversant with the article prior to its appearance in print, and, at the same time, carry with it a suggestion which it is difficult to ignore.

It is perfectly true that articles extolling certain nostrums have appeared in medical journals, and so long as they are written in good faith there is no legitimate objection to their publication ; but, unfortunately, many have only gone under colours as advertisements, and this is no argument why the practice should be further extended to veterinary literature. If our neighbours err, that is no reason we should do likewise ; it should rather prevent us falling into the same error.

The fourth paragraph of Mr. Maynard's letter I should rather leave to less partial judges than I should probably be, of my own "small experience" ; and simply add that my experience is probably not so "small" as Mr. Maynard is disposed to think.

It is difficult to understand the practice of medicine in the past, if no reliable tonic has been known till the introduction of the Mist. quinquin. comp. ; and it is the more mysterious still when this unique mixture is composed of agents which have long been well-known and in daily use, especially Nux vomica and the Cinchona alkaloids. Dialyzed iron is a more recent preparation, it is true ; but to my personal knowledge it has been used since 1878. In Mr. Maynard's article we are told he tried "every conceivable drug classed as a tonic," and in his letter he implies an equally extensive experience of combinations. Is it that the efficacy of this nostrum lies in the fact that its quantitative composition is a secret? or is it that the ingredients used are in some fixed and definite quantities, producing some new compound having properties entirely different from any or all of the constituents? Perhaps Mr. Maynard can solve this question, and offer some explanation of its *modus operandi* as a therapeutic agent, and also prove his statement "that quinquinine is of greater value therapeutically than quinine."

If I had scandalized Mr. Maynard I should feel extremely sorry, and humbly apologize ; but I fail to see any scandal in one member of a profession (even an assistant) forming his own opinion, even though it may not coincide with that of others. I hope it isn't that Mr. Maynard objects to an assistant forming opinions which differ from those of his elders. THE CURE OF A CASE OF PYÆMIA IN SIX HOURS IS A THING I DO NOT BELIEVE, and I contend I am perfectly justified in forming and expressing my opinion on such a point. The fact that the St. Bernard pup belonged to a Mr. Purchase, a resident at Romsey, and the other cases belonged to some person or persons not named, adds very little indeed to the history or interest of the cases.

Mr. Maynard states that as regards Messrs. Mackey's preparation, my argument utterly fails, inasmuch as the *formula* is *fully* set forth on the label. Well, I copy the following from one of Mackey's labels :—"Each fluid ounce contains two drams of Tinct. nuc vomica, with quinquinine and iron. Dose—one ounce, diluted." If this *fully sets forth the formula* to Mr. Maynard it does not to me. If it is necessary to know the quantity of any ingredient, I certainly think it is that of the basis which, according to Mr. Maynard's article, is quinquinine. Next in importance would be to know the quantity of the adjuvant, which in this case I presume is dialyzed iron ; and it would be of great importance to know the strength of the solution used, as owing to there being no official preparation, different samples contain varying quantities of peroxide ; one well-known firm advertise theirs as containing 12 grains in each fluid ounce, while Wyeth's is said to contain over 20 grains (25 to 27, I believe). The Nux vomica

tincture, which is the only quantity given, is evidently of little or no importance, as Mr. Maynard does not even mention it. Again, nostrums are not always what the advertisements profess, as in the specimen I examined, which was from a respectable London firm.

As to the paragraph quoted from my letter, pointing the moral of his article to a degree, I fail to see: evidently Mr. Maynard and I have different views as to the degree of, and the direction in which the moral points.

I do not say the three ingredients used are not a useful combination (qualitatively) in some cases, but Mr. Maynard has yet to teach the profession that these three agents (even in known proportions) are suitable, not to say necessary, for all cases requiring tonic treatment, before this nostrum occupies the enviable position in therapeutics which he unhesitatingly declares it will.

I am somewhat surprised Mr. Maynard should have found it necessary to cavil at my *nom de plume*. I consider I have a perfect right to employ whatever *nom de plume* I please. I am, however, unaware of having in any way altered, modified, or even used the Greek alphabet, and if this did not resolve itself into a purely philological question (which is scarcely suited to the aims of a veterinary journal), I don't think it would be difficult to convince even Mr. Maynard of the propriety of spelling Pharmacon with a *c*, as well as several other pharmacological terms.—

Yours, etc.,

June 3rd, 1882. "PHARMACON" (not Φαρμακον).

DEAR SIR,—In justice to Messrs. Mackey and Co., I would state that the "tonic mixture" I examined was not theirs. I would also thank them for the offer to send me a bottle of their preparation for trial; but when I have occasion to administer the three agents composing it, I prefer to do so in known proportions. As to a sample for analysis, since writing my previous letter I have seen and examined their preparation.

Yours truly,

June 5th, 1882. "PHARMACON."

RABIES AND HYDROPHOBIA.

DEAR SIR,—The enclosed cutting from one of our newspapers* is a

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* SHOCKING DEATH FROM HYDROPHOBIA.

A melancholy case of death from Hydrophobia has occurred this week, the victim being Mr. Charles Arthur Hardwick, aged twenty years, son of Mr. Hardwick, the well-known farmer, of Hangleton House, Portslade. An inquiry into the circumstances was held in the Museum at the Sussex County Hospital, on Wednesday afternoon, before the Deputy Borough Coroner (A. Freeman Gell, Esq.), deceased having been removed to the Hospital last week.

The first witness called was Mr. Henry New, surgeon, of Preston, who stated that he was on a visit to the family of Mr. Hardwick. He was taking a walk with the deceased about the farm, at eleven o'clock on the morning of the 28th of March last, when the wife of the groom called to him, stating that a dog was hunting the sheep in the next field. Deceased jumped over the wall and eventually caught the animal by the collar with his right hand. He stretched out his left hand, to take it up in his arms, as it was a small dog not larger than a cat, when, as he did so, the dog bit him on the ball of the thumb of the left hand. Deceased dropped the animal, which again ran after the sheep. It had taken hold of several, and now caught hold of several more; when some of the farm labourers, finding it a troublesome little thing—not thinking, however, there was anything the matter with it—killed it with a stick.

The Deputy-Coroner: What sort of a wound was it that it inflicted upon deceased?

melancholy proof of the presence of Rabies here at Brighton, and I fear not the last we shall hear of the disease. This dog was not among the thirty-five cases I spoke of in the April number of the Journal. Six more have come under my observation since then, the last being only a fortnight ago. This dog, which belonged to a furniture dealer here, had been under the treatment of a bird-fancier for several days, he being of opinion that the dog was suffering from worms. This same "dog doctor" had attempted the extraction of an imaginary bone from the throat of the fox-terrier I sent to the Royal Veterinary College, and which was destroyed by Prof. Robertson on account of his great violence. Surely the Veterinary Surgeons' Act will be a benefit to such pretenders, if only in protecting them from their own ignorance.

The general indifference to dog practice among qualified veterinary surgeons, is no doubt largely the cause of the existence of a race of pretenders who have the assurance to make charges which many country veterinarians would consider handsome remuneration. That special instruction at college on canine matters is much required, Mr. Metherell has, among others, frequently urged, and I venture to assert that without *practice* a veterinary surgeon cannot successfully treat the diseases of dogs. Comparison to the horse is of little value, and posology inaccurate.

Mr. New: A deep penetrating wound on the ball of the thumb. There were, in fact, two or three bites.

Did you attend to him?—Yes; in less than five minutes I applied caustic, not thinking there was anything the matter with the dog, but as a precaution. I applied it to the very bottom of the wound.

How soon was he taken ill after that?—He was as well as usual up to the evening of the 26th of May, when, about seven or half-past seven o'clock in the evening, he complained of a general heaviness and headache, and said he should like to go to bed. His brother, who slept with him, said that in the night deceased complained of being thirsty, and got up to drink some water, which he threw all over the place. In the morning his sister made a cup of coffee and took it to him, but he could not drink it. He tried to do so, but immediately spurted it out, and could not swallow a drop. Miss Hardwick became frightened and ran down to me. That was on Saturday, the 27th. I tried to give him a pill; but it came back in the same way. I also gave him some milk, which he tried hard to take, but it nearly choked him. He jumped out of bed, and I immediately saw what was the matter with him. As I did not like to take the case in my own hands, Mr. Hardwick sent to Brighton for his medical man, Dr. Ross, who came with Dr. Taaffe; and they thought it better that deceased should be sent to the Hospital.

Have you seen him since he has been in the Hospital?—Yes; twice. I saw him about three hours before he died.

Mr. Inskip (Foreman of the Jury): Who did the dog belong to?

Mr. New: We don't know.

Were any of the sheep affected?—No; it was such a very little black-and-tan thing—a pet dog—that I don't suppose its bites penetrated the wool.

Mr. Bernard Scott, House Surgeon of the Hospital, stated that deceased was admitted about five o'clock on the afternoon of last Saturday, suffering from the symptoms of Hydrophobia. He gradually got worse and died on Monday, about forty-eight hours after he was brought in.

By the Coroner: There was no doubt that death was the result of Hydrophobia.

Mr. Inskip: Has any *post-mortem* examination been made?

Mr. Scott: Not a complete one; but we have examined the upper part of the spinal cord, where results are generally looked for in such cases, and the examination corroborated our opinion.

Are there any marks about the body?—None of violence, except those which he inflicted upon himself.

By the Coroner: As a rule, from experience in such cases, the symptoms of Hydrophobia develope themselves about two months after the injury has been received.

There were other witnesses present who could speak to the injury and to the destruction of the dog; but the Jury, being satisfied with what they had heard, returned a verdict to the effect that death resulted from Hydrophobia.

Without for a moment wishing to detract from the value of such a pharmacopæia as Tuson's, I may say the doses are adjusted on a scale commensurate with the size or weight of an average dog as compared with the horse or man, and not upon the results of experiments.

I am, etc.,

Brighton, *June 5th*, 1882. HAROLD LEENEY.

SEWAGE GRASS.

SIR,—For the information of your inquirer "Epsom," in last month's Journal, I send you the analysis of milk obtained from forty to fifty cows, stall fed on *sewage grass* (they having no hay or straw and *not* being turned out to graze). Their daily ration was about 1¼ to 1½ cwt. of grass, with 2 lbs. each of palm-nut, cotton cake, and bean meal. The milk and butter being consumed in the fashionable town of Leamington is a sufficient proof of the excellence of its quality. Corroborative evidence could be obtained from the British Farmers' Dairy Company. Yours faithfully,

Warwick, *20th June*, 1882. EDWARD STANLEY, F.R.C.V.S.

[*Copy.*]

County Analyst's Laboratory,
Temple Street, Birmingham.
June 2nd, 1882.

Dear Sir,—The following are the results of my analysis of the sample of milk sent by you as received here on 31st ult. :—

Solids—not fat	9·09	per cent.
Fat	4·37	
Total Solids...	13·46	

These figures show the milk to be of excellent quality and rich in fat.

I remain, yours faithfully,

Mr. D. Tough, Manager
Lord Warwick's Heathcote Farm, Warwick.

A. BOSTOCK HILL.

ARMY VETERINARY DEPARTMENT.

DEAR MR. EDITOR,—I know that you are always kind enough to publish in the VETERINARY JOURNAL anything that is wished for by us, so that it may be brought to the notice of those in authority.

The question I would now ask is this: Is the cocked hat a suitable head-dress for the veterinary officer? When we were regimental we wore the head-dress of the corps to which we belonged, at least in the Artillery. I cannot speak for certain as to what was worn in the cavalry, never having served in it; but, under the new regulations, I believe we have to don the unsightly and, I am informed, uncomfortable and unserviceable cocked hat. I know this head-gear would be greatly disliked by many veterinary officers, as they have no desire to be mistaken for Generals or "Aides," which I hear has occurred on some isolated occasions, when the veterinary surgeon has appeared in it, making him feel anything but comfortable; and when passing a guard he hears the words, "Guard, turn out!" and to the uninitiated the poor fellow would be terribly perplexed what to do. And I am sure our chief, who has done so much for us, and is always ready to make us as comfortable in the Department as circumstances will admit, when he is made aware of our utter dislike to the unsightly head adornment which we shall soon have to supply ourselves with, if some steps are not taken to prevent it, will, I am

sure, advise the authorities to give us a head-dress we could wear with comfort, at the same time that it would be serviceable and look smart and soldier-like.

"TOPIE."

MUCO-GASTRO-ENTERITIS IN CALVES.

SIR,—I quite agree with Mr. Thomas Campbell, of Kirkcudbright, that the disease described by him under the above designation is neither Tubercular Stomatitis, nor even of tubercular origin. The truth of this is but too evident if we accept as correct the details of his typical case; but, at the same time, I must be allowed to remark that neither Mr. Campbell nor his numerous readers will find it an easy matter to discover from his communication what he actually makes out *his* disease to be. The only thing plainly observable is the heroic way in which he seems to dispose of his patients—in this case a Galloway bull-calf from a prize stock. After an examination and consideration of the case he kills his patient and makes a—*post-mortem!*

I don't intend wasting space entering into a criticism of the minutiæ of his *post-mortem* appearances and his deductions therefrom, but will confine myself to two extracts from the same.

1st. In his *Microscopic Anatomy* he says:—"After many careful examinations, under different objectives, of the sections of the tongue, I have come to the conclusion that the curd-like deposit is neither more nor less than coagulated saliva and mucus."

2nd. In his *Pathology* he explains the causation of the mouth lesions in this way:—"The unhealthy, acid, acrid, and offensive fluid contents of the stomach are sent freely into the mouth by regurgitation. Constant contact and mixing with the copious secretions of saliva and mucus in the mouth bring about a coagulation of the fluids; the coagulum is deposited on the cheeks and tongue, and its presence, by interfering with the natural functions of the parts, leads to absorption of the mucous membrane."

These statements are quite at variance—irreparably so. In the one the deposit consists of coagulated "saliva and mucus," while in the other it is decidedly a coagulation of "the fluids," which fluids consist of the "fluid contents" of the stomach coagulated by coming in contact with the saliva and mucus! The incongruity of these statements is simply ridiculous, more especially when taken in connection with Mr. Thomas Campbell's severe animadversions on my theory of the Tubercular nature of the peculiar Stomatitis so often described in these pages.

Mr. Thomas Campbell might pertinently be asked to answer the following queries, namely: (1) How does the saliva and mucus become coagulated? (2) What reason can he give for the coagulated saliva and mucus becoming attached to tip of tongue?—a most unlikely position, the almost perpetual motion being much against any coagulation. (3) Of what did the unhealthy and offensive *fluid* contents of the stomach consist which were so freely regurgitated into the mouth? (4) How did the mucus and saliva coagulate these fluid contents of the stomach?

I need not proceed, however, with such queries, as it is quite evident that Mr. Campbell's deductions consist of mere impossibilities, the climax being reached when he asks us to believe that the mechanical pressure of these supposed (but utterly impossible) coagulations upon the mucous membrane of the tongue causes absorption of the said mucous membrane and subjacent tissues!

In Mr. Campbell's typical case the deposits inside the cheeks and at the tip of the tongue consisted "of a whitish yellow material of the consistence of newly-separated curd," which he easily removed with the finger. On *post-mortem*, immediately after, he found that the stomach "contained a large

quantity of a greenish-coloured fluid," part of which, according to his *Pathology*, was regurgitated and went, by coagulation, to form the whitish yellow coagula found in the mouth! The hypothesis is quite untenable.

Any one who has come across the peculiar stomatitis described by me, whether tubercular or gangrenous, will at once acknowledge the impossibility of removing the deposits with one's finger, or wiping them off with a towel; they can only be got rid of by severe scraping or cutting. Besides, how does Mr. Campbell get over the ravages of the disease at the anterior part of the lower jaw, where several incisors have often to be extracted? I suppose he would make a clean sweep with a towel!

In the VETERINARY JOURNAL for April last, I related several cases of Tubercular Stomatitis recently occurring in practice. The first case was a calf on a large farm, and here *five* other cases followed within a short time after. The fourth case occurred in a ten-months-old stirk, anterior part lower jaw; within a week another stirk, same age, was attacked in like manner at the same farm. Comment is needless.

Mr. Thomas Campbell winds up his communication with a few aimless remarks on Tuberculosis. I have already said that I agree with him in denying that the "disorder in calves" (described by him) can have any "connection with Tuberculosis;" but when he says that "Tuberculosis is seldom seen in young subjects," he is merely promulgating what is not true, and his seventeen years' practice and experience are absolutely worthless to build an argument upon if he has only during that time met with one case of Tuberculosis in a young animal, and that animal even ten months and a half old.

Mr. Campbell must surely be conversant with the writings of Messrs. Fleming, Walley, and Gray. If so he will find they all coincide in saying that young animals are especially prone to Tubercle. In Mr. Fleming's "Veterinary Sanitary Science and Police," he will find (p. 371) that "young animals are more predisposed than old" to Tubercle; and in the same writer's "Monograph on Tuberculosis," he will find that genuine tubercles were found in both lungs of "three aborted calves of three months!" If Mr. Thomas Campbell would only keep himself conversant with current professional literature, he would find that his ideas on Tuberculosis are not only false, but actually dangerous; and I must candidly tell him that he has no right to make light of such a serious matter as the diffusion of Tuberculosis.

In conclusion, there was not the slightest necessity to refer to my communication, on "Tuberculosis in Calves," in the *Veterinarian* for November, 1881, as being "by a writer." That paper speaks for itself, and is entirely the results of experience and personal research; and, more than that, is wholly in accordance with the most recent scientific publications on Tubercle, with, perhaps, the solitary exceptions of those emanating from Egypt and Kirkcudbright!—Yours, etc.,

A. E. MACGILLIVRAY, M.R.C.V.S.,
Veterinary Inspector.

Banff.

THE CERTIFICATE OF DISTINCTION.

SIR,—When you, as an examiner, commanded me to step forward and receive the congratulatory remarks of the board, upon my having passed with "very great credit," no little pride filled my breast, and I naturally thought that the "certificate of distinction," with which I was afterwards presented, was an honour conferred only on those who attained *great* credit.

It is five years since this tumult of joy took place in my bosom, and I find now that men who pass in the second order of merit receive the same certificate, and what seems to me worse still, I see by this month's Journal that

a student who was at the Royal Veterinary College all those years ago, and failed continuously to pass his "first," has now "starred" at one of the Scotch colleges—surely such a man is not a fair competitor with first year's students! After four or five years at the London College some sort of handicap is needed if a man is to compete with freshmen.

I am, sir, yours, etc.,
"VERY GREAT CREDIT."

TO CORRESPONDENTS.

"Rectus" has not sent his name. If he will do so (not for publication) his letter will appear.

NOTICE.

Morbid specimens for examination and report are received at the Brown Institution, Wandsworth Road, London. They should be sent as soon as possible after death, accompanied by a short written statement of the case. If decomposition is likely to set in rapidly, the specimen should be enclosed in a piece of cloth saturated with some preservative fluid—as alcohol. When sent by carrier, bodies of animals must be carefully packed in straw or hay, in a suitable box or hamper, and the carriage prepaid.

The Editor would feel greatly obliged if colleagues who have the opportunity would send: 1. Specimens of the so-called Tubercular Stomatitis; 2. Fresh specimen of bovine tubercle—a small portion, preserved in alcohol; 3. A mouse affected with *Tinea favosa*; 4. A small snip of living skin, affected with *Tinea tonsurans*, from a black horse.

Communications, Books, Journals, etc., Received.

Communications have been received from Professor Duncan, Toronto; H. Leeney, Brighton; "Very Great Credit"; T. W. Mayer, Aldershot; J. Dowling Allman, London; J. W. T. Moore, Liverpool; "Pharmacon"; R. Rutherford, Edinburgh; J. Ferris, A.V.D., Athlone; S. M. Wilson, A.V.D., Aldershot; A. Spruell, Dundee; A. E. Macgillivray, Banff; C. Morgan, Nonington; "Topie"; "Rectus"; A. W. Hill, London; Dr. Thin, London; E. Stanley, Warwick.

BOOKS AND PAMPHLETS: *H. Pütz*, Die Seuchen und Herdekrankheiten unserer Hausthiere; *A. Goubaux, G. Barrier*, De Extérieur du Cheval; Report of the Colonial (Cape of Good Hope) Veterinary Surgeon; Return in Pursuance of the Provisions of the 59th Section of the Contagious Diseases (Animals) Act for 1881, as regards Ireland; *S. Gamgee*, Vivisection and Human Surgery; *F. Kaiser*, Ueber Scabies bei den Haussäugthieren speciell bei den Schafen; *P. Göring*, Die Veterinär-Polizeiver-waltung nach den reichsgetzlichen Bestimmungen; Proceedings of the Medical Society of the County of Kings; *G. Ponfik*, Die Actinomykose des Menschen; *Alb. Johne*, Ueber Geschwulste; Der Ausbruch der Rinderpest in Schlesien; *G. Müller*, Milch und Milchcontrole; Bulletin de la Soc. Centrale de Médecine Vétérinaire.

JOURNALS, ETC.: *The Journal of Comparative Medicine and Surgery; American Veterinary Review; Annales de Méd. Vétérinaire; Live Stock Journal; Squire; National Live Stock Journal; Archives Vétérinaire; l'Echo Vétérinaire; La Clinica Veterinaria; Journal de Méd. Vétérinaire et de Zootechnie; Recueil de Méd. Vétérinaire; Revue Vétérinaire; Wochenschrift für Thierheilkunde und Viehzucht; Deutsche Zeitschrift für Thiermedicine und Vergleichende Pathologie; Oesterreichische Vierteljahresschrift für Wissenschaftliche Veterinärkunde; Lancet; La Presse Vétérinaire; Field; Repertorium der Thierheilkunde; Zeitschrift für Vergleichende Augenheilkunde; Der Thierarzt; Medical Press and Circular; Mark Lane Express; Agricultural Gazette; Tidskrift för Veterinär-Medicin och Husdjursskötsel.*

NEWSPAPERS: *Freeman's Journal; Irish Times; Lahore Civil and Military Gazette; Dublin Sport; Daily News; York Herald; Montreal Gazette.*